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THE SCIENCE OF LIFE: ITS STUDY AND RELATIONS, PARTICULARLY WITH THEOLOGY.

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WHAT we know of the existence of the great chemical circulation on the surface of the earth, of which I have given a brief statement, which is called into action or continued in action by the rays of the sun, and on which all human life is dependent, seems to be a sufficient account of the greater number of the facts which we refer to the head of Vital Action; because it appears to have been by engrafting the changes included under that term on the previously existing laws of Nature, that provision has been made, not only for the continued excitement, but for the eternal reproduction (so long as the Almighty shall will it) of all the phenomena of life, and for all the powers, capacities, and designs, still only imperfectly made known to us, of which the human race is fitted to be the depositary and the agent.

It is easy to understand that powers and capacities granted to human beings with these intentions, may be most satisfactorily illustrated by reference to what we see of the corresponding powers granted to the lower animals; but which, until lately, had hardly attracted any systematic attention from philosophers; and as to which, indeed, it has very recently been disputed whether any powers, similar or corresponding to the sensations and voluntary powers of man, should be ascribed. I would regard it as perhaps the most important existing indication of the advanced state of Physiology and Mental Philosophy among mankind, that we have now no difficulty whatever, not only as to recognising those mental acts in lower animals exactly corresponding to ours, but as to believing, as I shall presently state, that many of the lower tribes enjoy sensations and voluntary powers of the same kind, but in a degree of superiority, when suited to the conditions and wants of their existence, which makes their contemplation one of the sublimest objects in Nature; and that many of the insects, and especially the animalcules, enjoy these powers in a degree many times exceeding any of the higher tribes. This is, in fact, one of the most striking illustrations of the principle I have stated, that the highest and most enduring interest which any human science can possess is that which must, in all time coming, attach itself to Physiology as the foundation of Natural Theology, and that which most simply and most surely connects it with Christianity.

Messrs. McCosh and Dickie, in connection with the admissions I have quoted from Mr. Powell and others, put the observation nearly as a question: Do we weaken the great principle of Final Causes, by admitting that, in organised structures, certainly in vegetables, probably in animals, parts are retained for the sake of symmetry, which are not necessary for the function of the organ? (*Typical Forms, etc.*, p. 438.) The answer to this, I apprehend, is clearly in the negative, and has been given already, nearly *totidem verbis*, by Powell; simply on this ground, that the "sake of symmetry" may be the design for which certain organs are intended—whether with the view of maintaining a connection with other organised beings; or with that of giving pleasure to the Creator, or to other individuals of the species; or for purposes altogether beyond our perception. Whatever be the object or intention of the Designing Power in maintaining symmetry, if we perceive that such and such peculiarities of structure have that effect, we are justified in asserting that an example of Final Cause—an instance of the second proposition of Reid's syllogism—is here afforded; just as it is, when we trace the symmetry of parts in examining the labours of an architect or a painter. The "use" in view may be "ornament" only; it is the circumstance of its being an accomplished object, which entitles us to rank it among other examples of that proposition, in illustration of which we adduce it.

Farther, I conceive that we apply this example to its proper purpose in this argument by observing, that—while the proof of design, as well as of the existence of an Organising Power, is given simply by the fact of this form of organisation being produced—the *nature* or disposition of that cause (one at least of the attributes of that power) is indicated by the circumstance of that organisation being symmetrical, and therefore capable of awakening the emotion of beauty in any mind capable of enjoying it.

The existence of power, then, is shewn by the contemplation of change, even independently of design; that of design if we are certain of contrivance, acting in a special case, and producing a special predetermined effect, whatever the nature of that effect may be. This is the essence of Teleology. Afterwards, if we are sure that some kind of enjoyment is thus given to living beings, we attribute benevolence, sense of beauty or sublimity, etc., to the mind by which the object is perceived and the contrivance arranged; and this we assert to be a sufficient and satisfactory analysis of this very common mental process. The preservation of the great types of structure, so commonly, and probably for various reasons, noticeable throughout the organised creation, may be said to be a limitation of the power possessed in all departments of Nature by the Creator of all, and extending far beyond what is granted to man. In this view, some important reflections may be suggested on such limitation: particularly from the principle, that the greatest intensity of sensation, and the greatest power of muscular action, are granted to animals, as the circumstances in which they are placed make these important to them, often for a very brief period, and when in all other respects the place they occupy is low in the scale of being.

As to the facts relating to instinctive movements, of which we are ourselves conscious, it is very important to observe that, although it is usual of late years to refer them all to what is termed the reflex function of the spinal cord, they have a peculiar importance in reference to Final Causes, as in part mental phenomena; *i. e.*, the facts, familiar as they seem, are all of them cases in which the independent mind of man not only bows, but feels that it bows, to the supreme wisdom of the Author of Nature; performing, with perfect precision, various movements involving the action of a great number of muscles acting under the influence of sensations, as in the strictly instinctive actions of breathing, coughing, sneezing, of evacuation of the rectum or bladder, throwing forward the hands when falling on the face, etc., and varying in intensity and in connexion with each other as the sensations vary, without the slightest information either as to the general mechanical or physical principle, or the special anatomical combinations on which the whole of the required movements and changes depend; with no more intelligence of the end to be answered by the complex act, than the heart that beats within us has of the use of the circulation to which it ministers. In these familiar cases, therefore, the science of physiology continually offers to the science of Final Causes, duly cultivated as its accompaniment and consequence, inferences just similar to

that which is ascribed in the Sacred Writings to the action of the Holy Spirit, when "it blows where it listeth, and we hear the sound thereof, but know not whence it comes nor whither it goes".

But, if it be supposed that those who have studied this subject previously to the "more enlightened views" of the present age were not aware of the importance of observing order and symmetry as implying unity of design in Nature, all such doubts are quite unnecessary; as is obvious on comparing all that has been recently stated on this subject with a few sentences of Mr. Stewart's *Philosophy* (book iii, ch. 2), where he treats professedly, first, of the characters of design displayed in the universe, and secondly, of their seeming to operate in conformity with one uniform plan. "The first inquiry", he adds, "is useful by its tendency to elevate our conceptions of the Supreme Being; the second is necessary for demonstration of his unity." (*Collected Works*, vol. vii, p. 57.) He concludes this part of his subject with a quotation from Buffon, of which almost all that has been since done in comparative anatomy and zoology may be regarded as an illustration. "In the creation of animals, the Supreme Being seems to have employed only one great idea, and at the same time to have diversified it in every possible manner, that man might have an opportunity of admiring equally the magnificence of the execution and the simplicity of the design." (*Ibid.*, p. 72.)

It is well observed by one of the most recent authors in France, that "the absolute ideal type of the animal has never been realised. The perfect animal, if it could exist on the earth, should combine within itself the rarest qualities which are now disseminated over a great number of species. It should move with the sure-footedness and velocity of the dziggeta, that wild species of the genus horse which, according to the traditions of the Mongols, served as the steed of the god of fire; it should pass through the air with the rapidity of the swift, and sustain its flight like the frigate-bird, which is met with six hundred miles from land, and which can therefore traverse a space of more than twelve hundred miles without for an instant stopping the play of its wings, the length of which precludes the possibility of its pausing to rest on the surface of the waves. This perfect animal should be able to plunge to the depths of the sea, and cleave the tempestuous waves with the rapidity of the dolphin and the persistence of the shark, which follows in the wake of a vessel from America to Europe, and thus, without pausing, accomplishes a voyage of some three thousand miles, but which may be said to be truly tripled or quadrupled by the incessant detours that intervene along the route. To these faculties, which appertain to the province of locomotion, he should join the strength of the elephant or whale, and the unerring scent of the hound, the delicate touch of the bat, the acute hearing of the mole, and the piercing sight of the condor, which, soaring above the Cordilleras, detects the smallest prey browsing on the plain more than four thousand yards below him. He should combine, for means of attack and defence, the formidable claws and terrible jaws of the tiger with the impenetrable cuirass of the crocodile, or the envenomed tooth of the rattlesnake. Finally, all these should be united in a body combining the grace of the kitten with the majestic calmness of the lion in repose, and adorned with the dazzling colours of the humming-bird or the bird of Paradise. Existing animals exhibit only partial analogies with the imaginary creature whose principal characteristics we have endeavoured to trace." (Quatrefages, *Rambles of a Naturalist*, etc., vol. i, p. 989.)

But the powers thus granted to certain of the larger animals are still feeble in comparison of those which our Creater bestows on many whose existence is so short, and makes so little impression on surrounding objects, that we might suppose them to have attracted little care or attention, until we examine their organs and the acts of these organs. A racehorse, moving at his utmost speed, may repeat his length ten times in a second; a greyhound, fifteen times; some insects—crawlers—thirty times; swimmers and skaters, fish and some insects, some hundred times; and the speed of some of the infusoria is in a vastly higher proportion, as related to their size." (Taylor, *World of Mind*, p. 140.)

Again, a muscular force is enjoyed by some of the volatile insect orders, which, if it had been conferred in the same proportion on the lion or elephant, would have made them indeed the lords of creation. The eagle, if gifted proportionally with the wing-power of the dragon-fly, would be free of all continents, would range the planet at large, and would prevent the morning, perching in one hour on the Andes, and the next on the Himalaya. (*Ib.*, p. 116.) Sensation, perception, a central consciousness, and, preeminently, the powers of locomotion, are seen to belong to beings, of whom as many as there were men in the army of Xerxes might be marshalled in open order on a sixpence. (*Ib.*, p. 110.) It is thus we may be satisfied that the same power which decorates and varies the decoration of these "children of an hour" so profusely and yet with such precision as may qualify them for many and various known offices, even prior to the existence of man upon earth, cannot have any difficulty in changing, in "the twinkling of an eye", the destination of the elements there employed, and using other means to fix the conditions under which the same mental powers, whether in the same or in other regions of space, may be employed.

I think no one can doubt, from many facts which have now been ascertained as to nutrition, even of vegetables, and as to recollection of changes that have taken place in our own nervous systems,* when composed of matters entirely different from that which forms their own, that, in order that the simplest of the animal functions may take place, it is not only necessary that a particular impression be made, but that a particular action be excited in certain portions of the nervous system. And, if we must admit that we are ignorant of the nature of the changes in the nervous system which attend peculiar sensations, so also we can have no difficulty in admitting that we are ignorant of the circumstances in which similar sensations may be excited without any impression from without being made on a brain and spinal cord; *i.e.*, ignorant of the circumstances in which *spectral delusions* may occur; of which, as they have been fully illustrated since the time of Reid, I shall only say here, that they afford better evidence than any facts then known of the justice of his doctrine, that the mind, and the mind's bodily organ, are not passive, but active, even during sensation—its simplest act.

Many illustrations of the doctrine of Final Causes are afforded by the whole of those mental changes, which we term sensation; both the general sensations of touch, heat, cold, etc., which we feel in various parts of the body and in different textures; and the special sensations of the nose, the eye, and the ear, the organs of respiration and digestion, which are confined to organs the preparation of which for receiving them is elaborate and in a great measure still obscure, but is traced distinctly throughout the whole vertebrated animals. And, after the explanation given above, I do not think we shall incur any risk of error, in here stating that some peculiarities, differing only in degree from the forms of the nervous system of other animals, if not already known to exist, may be reasonably expected, in the progress of science, as the accompaniments of the peculiar sensitive and motor powers of the vertebrated animals, as well as of the peculiar intellectual powers and moral dispositions of the human race. The objection to the view of that matter taken by the phrenological writers in the last age, lay not in the assertion that any kind of peculiarity of mental act might attend and be indicated by the development of any portion of the brain or spinal cord in man or in any vertebrated animals, but in the assertion that any such subdivision of the mental faculties or powers on the one hand, or of the larger masses of the nervous system on the other, as is necessary to give precision to these statements had been made out, or could be reasonably anticipated. Even if it were ascertained that any individual lobule of the brain is as uniformly connected with the power to recollect any particular sensation, or to indulge any particular desire, as a retina,—*i.e.*, expansion of an optic nerve—is with the development of a crystalline lens in the axis of the eye, we should be as far as ever from having an explanation of the mental sensations following the impression on the retina in the one case, or of that desire following the impression on the brain-lobule in the other. And, as to the connection of any kind of action which may go on in that lobule, and to be any use as to the gratifying of that mental vision, the proper inference will be, as in the former cases already noticed, not that the desire is caused by the life of the lobule, but that the power which regulated both the formation of the organ and the occurrence of the mental act, was cognisant of both, and adjusted the one to the other.

* "The molecules of the brain," says Sir B. Brodie, "in a man of twenty years of age, are not the same with those that formed the brain of the same individual when he was ten years old, nor with those of which it will be composed when he arrives at the age of fifty years. The *mind* preserves *its identity*, but there is *no corresponding identity* of the *corporeal organ* with which it is associated: and we may even venture to assert, that the brain of to-day is not precisely and in all respects the same with the brain of yesterday, and that it will not be the brain of to-morrow." (*Psychological Enquiries*, page 156.)

Among the various acts of mind of which we are conscious, which have been carefully distinguished by various authors who have treated of Final Causes, and the names given to which, as adopted by Reid and Stewart, are pretty generally known, although certainly not so uniformly observed as is desirable,* there is one obvious distinction, the importance of which has perhaps never been sufficiently marked; viz., that some of the names given are applicable only to the laws of association or succession of acts of mind, such as *memory*, *association* or *suggestion of ideas*, particularly the important distinctions of association by previous association, and by resemblance, on which the differences of character in individuals chiefly depend; while others are applicable to the nature of the acts themselves. This seems to me the more important, as in many, if not in all cases, where we are sure that injuries or diseases affect the mind, it is by influencing the first class of mental laws, the order of succession, and the degree of endurance, of the acts of thought only, that their effect is produced. Of course, it is with this class of mental phenomena especially that medical men must necessarily be continually engaged; and it is in regard to these, that it is most important that their notions should be as clear and precise as possible.

Again, among the mental phenomena to which the nomenclature of Reid and Stewart applies, there is another obvious distinction, between those which are unattended with any feeling of power or of voluntary determination; as to which, in the language of V. Cousin, we are only spectators, as they arise in our minds; and those to which such feeling of voluntary determination is necessarily attached; whether justly or not, we do not, in the first place, inquire.

As to the characteristic nature of those phenomena, both mental and physical, which we regard as examples of voluntary actions dependent on the will of individual persons, as distinguished from all such as we believe to be necessary results of mutual laws—*i.e.*, as to the indications of the "*Fatis avolsa voluntas*"—the most important observations we have to make are these: 1. That we have a distinct consciousness, demanding our assent, on the principles already stated, that such a power exists in any one of us, may be distinguished from all other mental acts, and is essential to his consciousness of individuality and personality, as well as responsibility. 2. That, in order to judge how the belief of this power is reconcileable with the belief of a greater power, regulating or at least influencing our thoughts, we must carefully attend to and examine the train or succession of these thoughts themselves. 3. That, when we do this, it may be confidently maintained, that such an influence, of a greater mind than the human, on individual human minds, certainly may exist; nay, that most of those whose judgment on such a point is most valuable, although regarding the subject from very different points of view, have been very confident that it does exist, but that we are not conscious of any mental feelings which inform us of its precise extent or power. Nay, that its mode of action is always essentially obscure, and such that it is only in *part* of the mental causes, influencing human affairs, that either the efficacy of fate, or the *Fatis avolsa voluntas*, can be recognised; that the difference between the agency of any effort or motive to action which is purely voluntary, and one which may be prompted by a spiritual adviser or foreign will, can be only in degree; and that, if it made itself known distinctly to the consciousness, it could not answer its moral end.

"Among those convictions," says Mr. Taylor, "which no sophistry can weaken longer than for an hour, this, of the absoluteness of that power of which our volitions are the result, is one of the most firm. The most subtile processes of logic still leave us in possession of the intuitive belief, that mind is free, *in some sense*, in which *nothing else in the world is free*; and that whatever be the law of its action, it is a law differing essentially from physical law." (*The World of Mind*, p. 50.)

That this ancient and well known difficulty depends essentially on verbal ambiguity is stated, at least as a probability, by Stewart; and it seems to me hardly necessary to do more than attend to the distinction between the precise use of the terms *volition*, or simple voluntary effort, and *motion* and *action*, complex, and always dependent on more or less of a mental process, which is in part involuntary, in order to perceive this distinction.

In illustration of this, I shall take the liberty of observing that Mr. Caird, in an excellent discourse lately published on "the Influence of the Divine Spirit," seems to me to have been misled, like others, as to the proper scientific meaning of words, when he said that "the arbitrariness which characterises the work of the spirit is *only apparent*; that beneath seeming irregularity there is real and *unvarying* law; that, as it is only because of the limits of our faculties that we cannot explain the reasons of every vagary of the restless mind, of every motion of each ever-changing cloud, that forms and floats and dissipates around us, as easily as we can tell why a stone falls to the ground, *so undoubtedly it is* with that of which the wind is set forth in Scripture as the type—the agency of the Divine Spirit."

In these expressions, to which I have formerly referred, of Newton, of Clarke and Cotes, of Reed and Stewart, of Brown and Sir William Hamilton, on this subject, the notion of arbitrary power, along with design or adaptation of means to end ("multa sapientissimi consilii, nulla necessitatis vestigia"), although not always expressed in the exactly same terms, is always regarded by them as essential to the argument which they employed to show that the true inference from the examination of the causes, whether physical or mental, to which it is the object of science to trace the phenomena around us, is that of their being the work of an omnipotent and beneficent Creator. But it is obvious that Mr. Caird, as well as many theological writers, here expresses, in opposition to most scientific writers, the scheme of Necessity as applicable to all the works of our Creator; which doctrine, in its application to human affairs, notwithstanding all that has been said to the contrary, I believe to be truly incompatible with all idea of comparative merit and demerit in the agents, and therefore liable both to the scientific objections and to the practical difficulties which many philosophical writers have ascribed to it.* Perhaps some of these clerical authors had not reflected on the arguments employed in this controversy by medical as well as clerical authors, perhaps they were not aware (*e.g.*) that the late Dr. Gregory published, as long since as 1792, two volumes on the precise point of the difference between the relation of motion and action and that of cause and effect in physics; nor of the statement of Cudworth, that the scepticism which flourished in his time grew up from the fatal necessity of all actions and events, as *from its proper root;* nor of that of Stewart that "the same observation will be found to apply to all the sceptical philosophy of his day;" nor of that of Butler, that "the opinion of necessity seems to be the basis on which infidelity grounds itself" (*Collected Works*, vol. vi, p. 43); nor of that of Reid, that "upon the supposition of necessity, there can be *no moral government* of the universe; its government must be perfectly mechanical, and every thing done in it, whether good or ill, must be God's own doing; while on that of liberty, there may be a perfect moral government of the universe, consistent with his accomplishing all his purposes in its creation and management." (*Collected Works* of Reid, p. 616.)

These extracts are sufficient to show the anxiety, and the reasons of the anxiety, of the profoundest metaphysicians of the last age, to oppose what they termed the "fatal doctrine of necessity in human affairs." I cannot help adding the general observation of Stewart on the tendency of this doctrine of necessity. "I would not by any means be understood to say, that every necessitarian must *ipso facto* be an atheist; or even that any presumption is afforded, by a man's attachment to the former sect, of his having the slightest bias in favour of the latter; but only that every modern atheist I have ever heard of has been a necessitarian. I may add, that by far the ablest necessitarians who have yet appeared, have been those who followed out their principles till they ended in Spinozism, a doctrine which differs from atheism more in words than in reality." (*Ib.*, p. 392.)

But, without farther reference to authority, on a subject which, as it may be brought to the test of experience (though not without some difficulty) by careful attention to the intimations of our own consciousness, we may assert with confidence that there are many mental acts—even many which naturally or inevitably tend to action—which are strictly dependent on *involuntary* changes; to which, according to the happy expression of Victor Cousin, "we are but *spectators*" of their arising in our minds. Accordingly, if Mr. Caird had said, in the sentence above quoted, that the arbitrariness which characterises

* For example, the definition, and in some respects decided simplification, of these names by Brown, is not yet so generally known or observed as it deserves to be.

* The expressions of Newton are—"Quicquid necessario existet, illud semper et ubique existit, cùm eadem sit necessitatis lex in locis et temporibus universis. Et hinc omnis rerum diversitas, quæ in locis et temporibus diversis reperitur, ex necessitate cæcâ non fuit, sed a voluntate entis necessario existentis originem duxit." (See notice by Dr. J. C. Gregory concerning a MS. of Sir Isaac Newton, in *Edinburgh Philosophical Transactions*, vol. xii.)

the operations of any spiritual influence that animates our frame is but *partial*, and that the extent of its influence is imperceptible to us, he would have been certainly more strictly accurate in his statement of the scientific fact, and would have left room for the expression of the additional facts—likewise objects of science—that our minds naturally form the notion of arbitrary power or of efficient cause, if not whenever we recognise law, at least wherever we see that a law has existed long, and been decidedly changed—especially if with a view to objects which we can perceive to be thus accomplished; and farther, that there are innumerable undeniable indications in the world around us of the laws, and therefore of the powers, which regulate the matter on the surface of the earth, having undergone and probably still undergoing such changes as we must regard as strictly arbitrary and miraculous; and that among these, as the most frequent and obvious, we must reckon the formation of organic forms out of simple chemical elements—cases where we are sure that a cause has acted which has "called on things that were not, and they came"; that the existence and operation of some such power on the surface of the earth are indicated by geological appearances of no older standing than most of the rocks around us; and again, that there are many and varied actions and changes, going on over the earth's surface, in which our minds themselves are felt to be (according to the expression of Guizot) intelligent, and to a certain extent free, but the agent of an Intelligent Power which is *not ours*, which must have existed long and regulated much, on the earth's surface, before any human being existed; therefore that the subjection, such as exists, of all inanimate matter to fixed laws, does not interfere with the essential importance of the term arbitrary, as used by Clarke and Newton, and as applicable to power as an affection of mind, nor prevent our answering decidedly in the negative the query which Stewart has stated as the only one which remains to be answered in the present state of the controversy regarding liberty and necessity; viz., Whether there is any reason to suppose that the universal feeling of freedom of action in mankind, on which our belief rests as distinctly as that of external existence on sensation, or that of past existence on memory, is nevertheless fallacious?

M. V. Cousin goes perhaps too far when he asserts that liberty is the sole test of personality; or that "all which is not free, in your mind, does not belong to you"; because it seems quite possible that a being susceptible of sensation and recollections, such as ours, may be conscious of personal existence, although not conscious of voluntary power; but it is sufficient to quote him in evidence of what I think cannot be denied, that a mind which has no such consciousness of voluntary power is not a human mind of natural and healthy constitution.

But, granting the existence of the voluntary power, the next object in this, as in all scientific inquiries, is, by examination of the facts, to ascertain how this power acts.

"By means of association of ideas," says Stewart, "a constant current of thoughts, if I may use the expression, is made to pass through the mind while we are awake. So completely, however, is the mind in this particular subjected to physical laws, that it has been justly observed, we *cannot by any effort of our will call up any one thought*, and that the train of our ideas depends on causes which operate in a manner inexplicable to us. This observation, although it has been censured as paradoxical, is almost self-evident; for to call up a particular thought, *supposes it to be already in the mind.*

"Notwithstanding, however, the immediate dependence of the train of our thoughts on the laws of Association, it must not be imagined, that the Will possesses no influence over it. This influence, indeed, is not exercised directly and immediately, as we are apt to suppose on a superficial view of the subject; but it is, nevertheless, *very extensive in its effects*, and the different degrees in which it is possessed by different individuals, constitute some of the most striking inequalities among men, in point of intellectual capacity.*

"Of the powers which the mind possesses over the train of its thoughts, the most obvious is its power of *singling* out any one of them at pleasure, of *detaining* it, and making it a particular *object of attention.* By doing so, we not only stop the succession that would otherwise take place, but in consequence of our bringing to view the less obvious relations among our ideas, we frequently divert the current of our thoughts into a new channel." (*Stewart's Works*, vol. ii, p. 266.)

To the same purpose, I may quote, with much satisfaction, a well known scientific medical writer, who had likewise the good fortune to be a pupil of Stewart—Sir Henry Holland.

"What power has the mind, by volition, in regulating the succession of its states, whether those belonging to sensations from without, or to thoughts and memory within? It is obvious to consciousness that it is a *limited faculty*, corresponding in this with that wonderful combination of voluntary and involuntary acts which pervades, or rather constitutes, every part of our existence. It is further certain that it *differs* much in *different individuals;* that it varies in the same individual at *different times;* that it may be enlarged by *effort and cultivation;* that it is very prone to fall under the dominion of *habit.*

"The power which the mind can exercise by volition over the succession of its thoughts, independently of all action from without, is indeed a point of deep interest to the intellectual history of man. *The power manifestly exists*, however we may name or define it. But as manifestly is it *limited and controlled* in its exercise by conditions inherent in our nature; and mainly, it may be said, by connexion with our bodily organisation; with the senses; and with those functions of organic or automatic life which are made the instruments of our being, and from which the mind can never long or completely detach itself. The intervention of impressions on the organs of sense, bodily disorder or disease, and the fatigue of the mind itself, are all concerned in this unceasing conflict between the will and the material conditions which surround it. These causes, again, operate in very different degree in different cases, producing a great disparity in the exercise of the power, independently of that original and innate diversity which may be presumed with certainty to exist." (*Ibid.*, p. 65.)

It has been thought to be an inconsistency in the reflections of Pope on human character and its results, to say—

> "Heaven gave me, in this dark estate,
> To see the good from ill,
> And, binding Nature fast in Fate,
> Left free the human will":—

and yet to indulge in such speculations as these—

> "Who knows but he whose hand the lightning forms,
> Who heaves old Ocean, and who wings the storms,
> Pours fierce ambition in a Cæsar's mind,
> Or turns young Ammon loose to scourge mankind?"

But I apprehend that he would have replied that it is only a part of human life, which he believed to be thus immediately limited by individual will, and that part is felt, when carefully examined, to be left open to the occasional interposition of a higher power; or, as he himself expressed—

> "Virtuous and vicious every man must be,
> Few in th' extreme, but all in the degree.
> The rogue and fool, *by fits*, is fair and wise;
> And e'en the best, *by fits*, what they despise.
> Each individual seeks a several goal,
> But Heaven's great view is one, and that the whole,
> And builds on *wants*, and on *defects* of mind,
> The joy, the peace, and glory of mankind."
>
> (*Essay on Man*, Ep. 2.)

I believe, then, that the action of the power or faculty to which we properly give the name of volition in the formation of motives to action, however rapid, is always a complex act, and that what is strictly and precisely called the will is always simple, and felt, on patient examination, to form only a part of that process; that these mental acts are partly regulated by laws implanted *ab origine* in our nature and common to us all; and that there is ample room left, besides, for their being farther controlled in individual cases by the influence or inspiration of a power of which we know no more, in the way of consciousness, than of the "wind which blows where it listeth, and we hear the sound thereof, but know not whence it comes, nor whither it goes." All this, as it appears to me, is amply testified by several of those who have studied this subject fully and in the simply scientific method, as well as by such an observer of human nature as the immortal author of the reflection that has nearly passed into a proverb—

> "There's a Divinity doth shape our ends,
> Rough-hew them how we will."

There is, no doubt, a difficulty in regard to the imputation of criminality to any human being, if we regard our motives to action as always so complex, and in part so distinct from the "Fatis avolsa voluntas", which is essential to the true object of just punishment; but I apprehend that we shall not only remove this difficulty, but give additional precision to our notions on this subject, if we attend to the true distinction between a *sin* and a *crime.* The latter term is only applicable to cases where an injury has been done to others by a voluntary act of man, and being measurable by the degree of that

* This last observation is fully illustrated by Brown.

injury, and the just object of graduated human punishment; whereas the former is applied to cases of infraction of the Law of God, whether as declared in his Word, or as written on the hearts of men; in regard to the degree of which we all feel that it is, in every case, a question betwixt man and his Maker, as to which "a stranger intermeddles not". "Vengeance is not ours". Few men, I believe, will be found, who will not assent to the opinion of the inability of human judgment to estimate the degrees of sin. This is exactly in accordance with the expression of the poet—

> "Man at the balance still be mute,
> We never can adjust it,
> What's done we aiblins may compute,
> But know not what's resisted."

And if it be said that, after all such discussions, we must necessarily arrive at the old difficulty of the imputation on the benevolence of Providence which is implied in the giving of origin to evil, I have only to reply, and can easily find equal literary and scientific support for the assertion, that the highest degree of happiness cannot be *accepted*, it must be *conquered;* and where there is "no resistance, there can be no conquest".

If these statements of facts are accurate, as they seem to me to be, there is no more inconsistency in saying that a man's conduct is regulated, in the healthy state, by his own free will, and yet that it is, to a certain degree (and that *variable by contingencies beyond his perception*), influenced by the operation of a power beyond his will, which may fix his attention with peculiar energy on certain parts of the train of thought constantly passing through his mind, thereby giving predominance and practical effect to peculiar recollections, emotions, or desires, and constituting peculiar motives to action, than there would be in saying that a vessel is moved and guided, or may be misguided, by human will, because the truly and immediately moving power acts only through her sails or her steam-boiler, and may be variously increased or diminished altogether independently of that will.

The question, how far the energy of the voluntary effort in any voluntary action has predominated in the result, must always be one of *degree;* and when we remember that the comparative degree of various motions, of the agency of which we may be conscious, is not revealed to us otherwise than by the event, we must allow that human life may be much and variously influenced by a higher Power, without our sense of liberty being thereby impaired. When we reflect on any line of conduct, and the motives that prompted it, on any occasion of moment, I apprehend that nothing is easier, and nothing more common therefore, than to suppose that a will, separate from our own, but obscuring our desire, has influenced it; at all events, that we have, and can have, in many individual cases, no evidence to the contrary.

Accordingly, when we look around us, and compare the recollections of which we are conscious with those of men perhaps more engaged in the affairs of the world, we shall find, as I believe, that little difficulty is felt in reconciling the belief in the superintendence of an all-wise Providence, with the liberty of human action within certain limits, and the responsibility of human agents. Indeed, I believe that on this point few individuals of the human race will be found who do not entertain some degree of superstitious feeling.

Dr. Reid observes, with his usual frankness and simplicity, that the justice of God's government requires that his creatures should be accountable only for what they have received, and not for what was never entrusted to them. But he says also, "He who made man may have ways of governing his determination, consistent with moral liberty, of which we have no conception. And he who gave this liberty freely, may lay any restraint on it which may be necessary for answering his wise and benevolent purposes."

Without pronouncing a decided opinion on this last question (which I apprehend to be in fact nearly a verbal one), I would only farther observe, that if there be truth in the distinction above stated, of mere volitions, such as move our muscles, from motives to action, which are always complex, we cannot acquiesce in the opinion that we have no conception of means consistent with moral liberty by which our Maker may, at his pleasure, guide our determinations.

In concluding these hasty observations, I beg leave again to refer to the strictly scientific reflections of Dr. Whewell on the peculiarities of all forms of life.

"Vegetable and animal nutrition, as we have said, form a constant circulation. The matter so assumed is not all retained: a perpetual subtraction accompanies a perpetual addition. The matter which is assumed by the living creature is retained only for awhile, and is then parted with. The individual is the same, but its parts are in a perpetual flux. *For a time*, the matter which belongs to the organic body is bound to it by certain laws; but before it is thus bound and after it is loose, this matter may circulate about the universe in any other form. *Life consists in a permanent influence over a perpetually changing set of particles.* . . . And are not vital as much beyond chemical, as chemical are beyond geometrical modifications?" (*Philosophy of the Inductive Sciences*, p. 42.)

In regard to all the mental or subjective phenomena, known to us by consciousness in ourselves, and inference in others, it is clearly important for us to understand, that they are all dependent on the continued action of nutrition, implying deposition and absorption, kept up by the continued circulation of the arterial blood through certain parts of the nervous system; and therefore, that there is this general peculiarity of all nervous action, as of the vital actions of nutrition or secretion, probably as an essential attribute of all vital action, that varies simply according to plan in a living structure, "the same compound fluid, which is passing through the capillary vessels in other parts of the body, yields up the constituent matters of the cells composing muscle, membrane, bone, or gland, and thereafter the peculiar matter which fills those cells, when carried to the points of the structure where nervous matter is to be deposited, whether the medullary or fibrous, or the vesicular or grey matter, yields up at these points these peculiar matters only."

This is only, so far as we understand it, an example of the same general property of nutrition and secretion which is carried on through the whole organised world; nay, it is carried on in much more wonderful extent and variety in some parts of the vegetable than in the animal kingdom. Neither by comparing it with any other of the phenomena of other organised bodies, nor by any change that we can perceive in the part where it goes on, can we form to ourselves any notion of any more general principles to which we can refer either the general fact of such matter being nourished at these points, or the more special fact of the nourished matter exhibiting such properties; *i.e.*, that no peculiar sensations, as those of light and colour, should take place when a ray of light should impress a very minute portion of this texture, *and only then*. Both these phenomena, therefore, as well the effect of Time on all living action, *i.e.*, on the powers granted to certain particles of matter for a certain season only, we are at present justified in regarding as *ultimate facts* in physiology:—the one, however, an objective one, belonging to the whole science of life; the other a subjective one, belonging to animal life only, and constituting the nervous system, as the special organ of the animal function of any animal, the different proportions and powers of which, connected with those acts of mind that are most closely related to the body in the vertebrated animals, are so far ascertained.

As to all the animal functions, when we say that the powers on which these depend are most correctly defined on *vital attractions* and *repulsions* and *affinities*, we mean only that they are more analogous than any others that we know to those phenomena existing everywhere, which we term attractions, repulsions, and affinities; that, if the difference from all these which has attracted our attention, and which we express by the term *vital*, shall be found hereafter, as to all or any part of these, to be founded in mistake, and they shall be all satisfactorily traced to the laws of physics and chemistry applied to the whole material world; or if, on the other hand, they shall be found hereafter to be fairly comprehended under such a general head as the "correlation of forces," there is in the meantime, as Dr. Reid expressed it, "no harm done—a finer eye may trace them farther." We are only at present obeying the dictates of science in making out a full and accurate description of them, distinguishing them from all others, and assigning names to these descriptions so far as we can point out the innovations which they make on what are otherwise uniform matters of observation by our senses.

I add only the observation of Brown, which I am happy to see expressed, likewise, nearly *totidem verbis*, by Mr. Taylor; and a proper understanding of which, he states, as the greatest advance that a student of metaphysics at this period of the history of science can make. Dr. Chalmers, in his edition of Brown's *Ethical Lectures*, states also as a speculation which he approves as holding out a prospect of important advantageous results, that it is the *whole mind* that is occupied in any act; not a portion of mind which is mixed up with or joined to other portions to make up a mind, but that the whole mind is occupied with every individual successive

portion of sensation or thought, however minute, of which we are conscious. If so, we can perceive that, both as to the infinitely great and the infinitely small, whether as regards space or time, our minds are necessarily and essentially unfathomable, *i. e.*, that there is something in them which cannot admit of the limitation either of space or of time. And, if this conviction is thus duly impressed on our belief—at the same time that we keep steadily in view what I have said of the arbitrary adaptation of means to ends, in the forms adapted and the powers granted to all living beings, and within a limited period of time, as made known by geology—it seems to me, as it did to those illustrious predecessors of mine in this university, as the most truly connecting link between Science and Religion—the very point to which it is desirable, with a view to the power of religion over the natural sciences, that the votaries of science—more numerous, as they are more intelligent, than in any former period of the earth's history—should be led, by their inquiries,* where they may hope to have their alliance firmly established with that Higher Power which has spoken on earth, not to them only, but to the human race.

Illustrations
OF
HOSPITAL PRACTICE:
METROPOLITAN AND PROVINCIAL.

MANCHESTER ROYAL INFIRMARY.

CASES OF PENETRATING ULCERS OF THE SOFT PALATE.

By Wm. Roberts, M.D., Physician to the Infirmary.

The following four examples of this not very common variety of sloughing ulcer occurred to me in somewhat quick succession among the out-patients of the Manchester Royal Infirmary. Their salient characteristics are: that they are confined to the soft palate which they perforate, and that they do not spread after their formation, but soon begin to heal by granulations.

Case I. Mary Willans, aged 20, was entered as an out-patient on November 5th, 1856. She was a pale, anæmic, but moderately fleshy girl; a native of Ireland, but resident in Manchester for the last ten years. Until four months ago, she was in service, and since that time had lived with an unmarried sister engaged in staymaking. Her parents died of the Irish fever. She has two brothers and one sister, and all three are healthy. There was no evidence, either from family history or the antecedents of the patient, of a tuberculous diathesis; and her appearance, although betokening an extremely impoverished state of blood, offered no valid indications of struma. There were no glandular swellings; the eyes were clear, and the eyelids uninjured. The catamenia had always been regular. Her usual health had been very good; but the previous Christmas she suffered from a whitlow on the thumb, which continued unhealed for seven weeks. Afterwards, although she was not positively ill, her previously vigorous health did not return. She was troubled with tinnitus aurium, frequent colds, and a general *malaise*. A week before admission, she was seized with a violent cold and sore-throat, which became aggravated in the course of the succeeding three days. On examination of the mouth, the soft palate was seen to be the seat of a sloughing ulcer. It presented a greyish yellow surface, had a perfectly circular outline, of about a quarter of an inch in diameter, and was situated in the mesial line about half an inch above the root of the uvula. Its centre was depressed, and evidently perforated, for liquids escaped into the posterior nares in swallowing. The surrounding mucous membrane was of a dull red colour, and slightly tumefied. The tonsils were scarcely larger than ordinary. There was no other ulcer or abrasion to be detected on any part of the membrane of the mouth or pharynx. She was ordered a draught containing fifteen minims of dilute nitric acid and five minims of laudanum in an ounce of decoction of bark, three times a day; together with a chlorinated soda gargle for frequent topical application.

Three days after, the perforation of the curtain of the soft palate was quite distinct to the eye; the ulcerative process had not in the least extended to the surrounding parts, but the mortified tissues in the track of the perforation had been almost entirely removed. The edges of the opening were well defined, abrupt, eroded, and clothed in a thin yellow investment. It seemed as if a piece of the entire thickness of the velum had been punched out with an instrument. The voice was somewhat thick, and its intonation nasal.

A fortnight later—the same treatment having been pursued—the palate was found much paler, no longer swollen, and the perforating ulcer was in process of healing. Its margins and sides were clean, and its bore filling up from the bottom. It still preserved its circular outline. Liquids did not now return by the nose, and the sound of the voice had become natural.

From this period, the solid nitrate of silver was applied to the ulcer from time to time. It was slow in closing; but at the end of the sixth week from the date of admission, I have the following entry in my case-book:—"Improving; ulcer nearly healed; anæmia disappearing; the patient is gathering flesh." She had been taking the citrate of iron and quinine for a fortnight, and all local applications had been discontinued. This medication was continued for some weeks longer, and by degrees she recovered her colour, and lost the tinnitus aurium and other symptoms referrible to a spanæmic condition of the blood.

Particular inquiries were made as to the pre-existence of syphilis. The patient confessed to not having been altogether continent, but strenuously and repeatedly denied having ever suffered from any venereal complaint; and the severest cross-questioning could not elicit evidence of any foregoing primary or secondary phenomena of a syphilitic complexion.

Case II. A stout heavy-looking servant woman, Jane Bloxam, aged 38, had applied as an out-patient in September 1856, suffering from very extensive syphilitic lepra, flying sore-throat, and wandering pains about the bones. Some three months previously, she had had primary sores on the genitals; these were now quite healed up. Five grains of iodide of potassium were administered three times a day in compound decoction of elm bark. This treatment had been pursued, with only moderate success, for three weeks, when she complained of great aggravation of the throat symptoms, together with loss of appetite, thirst, and severe general discomfort.

When the mouth was opened, the soft palate and the oral membrane in its vicinity were observed to be red and turgid; and on the left half of the velum was a yellow slough about the size of a sixpence. It had a round clear margin; and its lower border impinged on the concave arch of the anterior pillar of the fauces. The rest of the mucous surface, both of the mouth and pharynx, was unbroken by any ulcer or excoriation.

She was put under the same treatment as the foregoing case. In a week the slough had separated, and its place was occupied by a somewhat circular ulcer with sharply cut edges, covered with a thin yellow coating, and intermediate in size between a sixpenny piece and a shilling. It involved the margin of the velum, in which a deep round indentation had been made. The slough did not seem to have spread in the least since the previous visit, but the margin having given way, the resiliency of the parts had widened the gap.

The articulation was indistinct; but swallowing was unimpeded. She complained of pain, deep-seated, in the pharynx, and stretching to the ear, evidently in the track of the Eustachian tube. Careful examination failed to detect any sloughing or ulceration extending in this direction, but the investing membrane was of a dusky red hue and thickened.

The treatment was continued for three weeks with great relief. The inflammation subsided, and the pain in the ear ceased. The ulcer slowly contracted under the influence of the topical application of lunar caustic. The syphilitic eruption faded at the outbreak of the disorder in the throat, and it has not since reappeared. She was discharged at the end of three months to all appearances well. The portion of the palate carried away by the slough had not been reproduced, and a notable deficiency was seen on its site; but this affected neither the voice nor the swallowing.

The third case entailed much more serious consequences than the preceding; arising not from the intensity or ex-

* Sir William Hamilton has shewn, in his notes on Dr. Reid, that in this, as in various other speculations, several ancient philosophers have in some measure anticipated the moderns; and I have often thought that Mr. Stewart was somewhat hasty in his absolute condemnation of the doctrine of many of the Eastern sages, described by Sir W. Jones as the mysterious reunion of minds, previously imprisoned in the human body, and to whom the senses had acted as limited outlets.

tent of the morbid process, but simply from the position of the slough. The reparative action in the cases just related restored completely the function of the palate, but here, the uvula and the parts in the middle line having been destroyed, an artificial cleft palate was produced; differing from the congenital malformation in the untoward circumstance, that there was loss of substance in addition to a lesion of continuity.

Case iii. John Whyte, a pale, somewhat thin but well-grown lad between thirteen and fourteen years of age, applied September 20, 1857, complaining, in a nasal voice, of pain in the throat and difficulty in swallowing. These symptoms were found to depend on an extensive slough occupying the centre of the soft palate, involving the uvula and the tissues at its base in such a manner as to cleave the velum into two halves almost to its attachment in the bony palate. Tattered dirty-white remnants of the destroyed membranes hung on the sides of the cleft. The margins of the latter were distinct and regular, and no other part of the mucous surface exhibited any abrasion, though in the neighbourhood of the rent curtain of the palate the mucous membrane was swollen and red. As the necessary consequence of this mutilation liquids returned by the nose, and the voice had a snuffling character and a nasal twang.

Inquiry into the antecedents of the patient disclosed the following: He had followed the trade of a skewer maker, and until the present attack had enjoyed excellent health. The right eye was staphylomatous, which, he stated, came to pass in consequence of inflammation involving both organs, and arising from cold while he was an infant three weeks old. The left eye was perfectly sound. Particular inquiries were made in order to ascertain the presence or absence of a syphilitic taint. The lad denied firmly and with intelligence having had any sexual intercourse. The genital organs were found quite undeveloped and infantile; so that there was no difficulty in concluding that the patient had no syphilis of his own getting. Being desirous to sift the matter still more completely, I desired the presence of his mother. She proved to be a decent looking woman of about 40 but unmarried. She had had syphilitic sores on the genitals eighteen months previously to the birth of this boy; but stated that while pregnant with him she did not suffer from primary ulcers nor from gonnorrhœa; though it does appear that she had a white discharge but no pain in micturition. Her condition was highly suggestive—almost demonstrative—of constitutional syphilis. The hair was to a great extent fallen, the voice hoarse and muffled; over the clavicle was a livid spot, and the bone beneath could be felt thickened into a considerable nodule. To prevent recapitulation, I may add, that a few months afterwards she came under my care for a creeping ulceration of the roof of the mouth, which issued in necrosis of a small portion of the bony palate. She asserted very positively that she had never had syphilis after the period above mentioned, and that since her paramour had left her, twelve years ago, she had kept herself beyond the reach of any venereal taint. This evidence was given with such appearance of honesty and anxiety to disclose all the truth, that I had no hesitation in accepting it as given in good faith.

Returning to the boy; it appeared that his illness had commenced about a week before with sore throat and difficulty in swallowing, and that the nasal intonation of the voice, and reflux of fluids by the posterior nares had existed only two days. The following medicine was ordered:

℞ Potassæ chloratis ℥ij; tincturæ opii ℥i; decocti ulmi comp. ℨxij. M. Fiat mistura, cujus sumatur ℨi ter quotidie.

In addition he was told to wash the mouth and throat frequently with a gargle containing half an ounce of the liq. sodæ chlorinatæ to ten ounces of water.

Four days afterwards, the slough had cleared off to a considerable extent; and by October 1st, a deep gulf or cleft occupied the position of the uvula. The margins of this were abrupt and covered with a thin yellowish crust. The destructive action had not extended since the first visit, but the redness and swelling of the mucous membrane had greatly subsided. The general symptoms had been marvellously slight from the beginning, and now there remained only a somewhat increased pallor of the cheeks, and a look of languor and weariness. The appetite was moderate, and there was no fever.

Another drachm of chlorate of potash was added to the mixture, so that he was now to take fifteen grains three times a day.

Matters continued without change for a week, when, with a view of arousing the system to increased action, nitromuriatic acid in decoction of bark was administered in fifteen drop doses three times a day. But in spite of this, together with a generous diet and daily use of six ounces of wine, the margin of the cleft showed no signs of healing. It was still yellow and abrupt, and neither extended nor contracted its limits.

On October 29th, five weeks from the commencement of the treatment, he represented himself as somewhat worse, and very considerable irritation of the entire system prevailed. He complained of stinging pain in the perineal region, especially aggravated by walking. On examination, an ulcer was found occupying the middle line, half way between the anus and scrotum. It was three quarters of an inch in length, of an oval shape, with sharply cut edges, and covered with a slight dirty yellow slough. It was of uniform depth and placed about a line beneath the level of the surrounding skin. The parts around were quite natural, and no sores or traces of sores were found about the anus. He was ordered:

℞ Potassii iodidi ℥i; decocti ulmi comp. ℨxij. M. Fiat mistura, cujus sumatur ℨi ter quotidie.

A sulphate of copper lotion was prescribed for the perineal ulcer, and the margins of the cleft palate were freely touched with the solid stick of nitrate of silver.

A week afterwards, he was much better; the perineal ulcer had not spread in the least; its borders were still abrupt, but it was covered with laudable pus, and caused no pain.

The treatment was continued, and very decided amendment set in. At the succeeding visit the edges of both ulcers were quite clear and bevelled. The general health much improved. From this period convalescence continued uninterrupted; the ulcer in the perineum speedily healed, and the fissure of the palate began to contract, while the strength and spirits rapidly improved. Finally, under the influence of chalybeates and quinine, the health was perfectly restored; but a wide chasm still separates the lateral halves of the velum, and the loss of substance in the middle line precludes the hope that the continuity of the parts can be restored by any operative procedure.

Case iv. Anne Morris, aged 21, a married woman, applied for relief on August 1, 1857. She complained, in a nasal voice, of sore throat, pain in swallowing, and regurgitation of drink by the nose. On looking into the mouth three distinct sloughs could be seen. One, the largest, about the size of a silver penny, occupied the middle line just above the root of the uvula; while the other two, which were not larger than a pea, were situated laterally, one on each side, on the descending slopes of the anterior pillars of the fauces. The central ulcer had penetrated the entire thickness of the velum, and the dead tissues were coming away from the middle parts. The other sloughs had not commenced to separate.

The following facts transpired on inquiry into her previous history. Although married for four years, she had not borne children; two miscarriages, however, had befallen her. The general health had been good. One eye was cataractous and further injured by inflammation, which attacked it two years ago in consequence of a severe cold and over-straining of the organs through prolonged sewing by gaslight.

The closest questioning failed to bring forth any evidence of syphilis.

She traced back her present illness to a very severe attack of erysipelas of the face and scalp about twelve months ago. For a whole week the eyes were closed from the swelled condition of the eyelids. Following the track of the integument, the swelling and redness invaded the mucous membrane of the mouth and throat, rendering it impossible to separate the teeth or to swallow anything, save a little liquid, for nearly a fortnight. She was under medical treatment and recovered pretty rapidly, but the throat continued tender for a long while, and she had a sense as if something half-blocked up the passage. A little cold would always fly to her throat, and her general health did not regain the high standard which it had maintained previous to the erysipelatous seizure. Two months ago, she again took a severe cold from living in a damp cellar, and a troublesome cough and sore throat set in. About a week after the commencement of this fresh attack, she brought up a black lump of blood; the throat became worse, only liquids could be swallowed; and before she applied at the Royal Infirmary, she noticed that fluids returned by the nose in swallowing. The general symptoms were not very prominent. There was an appearance of some feebleness, and she com-

plained of failing appetite and indifferent sleep. She was ordered,—

℞ Acidi nitromuriatici diluti ʒij; tincturæ aurantii ʒj; infusi calumbæ ʒxij. M. Fiat mistura, cujus sumatur ʒj ter quotidie.

An alum gargle was likewise prescribed. In a fortnight the sloughs had cleared away. A clear perforation traversed the veil of the palate just above the root of the uvula. It was somewhat triangular in shape, with the base at the uvula, and the apex pointing upward. Its extreme length was two-thirds of an inch, its breadth at the base half an inch, and the posterior wall of the pharynx could be distinctly seen through it. Its margins were so abrupt that it seemed as if a piece of the velum had been punched out by an instrument. The lateral ulcers presented the appearance of deep narrow pits. I could not satisfy myself that they penetrated right through the membrane, but as they were evidently commencing to heal up, it may have happened that the channel of the perforation had been blocked up by granulations.

She was now placed under the influence of the citrate of iron and quinine, and the ulcerated surfaces were touched twice a week with nitrate of silver. In three weeks the lateral ulcers could not be recognised, and the central one was filled with granulations. The voice was natural, swallowing perfect, and the mucous membrane presented a pale—almost anæmic—look. Ten days later she was discharged completely cured.

Remarks. The series of morbid phenomena disclosed by these cases is a somewhat remarkable one. The patient takes cold; it lodges in the throat; there is pain and difficulty in swallowing food. In a few days a limited portion of the soft palate is suddenly deprived of life; the tissues at this spot form a dirty yellowish slough, and shortly separate, leaving the velum traversed through its entire substance by a sharply margined perforation. This perforating ulcer shows no disposition to extend, but just the contrary; it shortly enters on a career of recovery, which, sometimes sooner sometimes later, issues in the filling up of the ulcerated track by granulations and restoration of the continuity and function of the part. When the slough involves the free border of the soft palate, restoration may be incomplete, not from any lack in the healing power, but from the physical condition of the parts putting a bar to their union. A nasal tone of voice and regurgitation upwards of liquids are the necessary accompaniments of a faulty soft palate, and inevitably distinguish the periods during which the abnormal channel is open.

The disease may be said to pass through three distinct stages: the stage of inflammation; the stage of sloughing, and the stage of restoration. The first has nothing very peculiar; it lasts from three to six days, and is accompanied with only very moderate systemic disturbance. The second stage is very short, apparently not prolonged over twenty-four hours, after which no sloughing takes place. The dead tissues then fall off, and the third stage sets in. Sometimes the healing process commences forthwith; but more commonly a pause of complete inactivity occurs for a week or more previous to the establishment of healthy reaction.

It is not very easy to explain the proximate cause of the sloughing. It can scarcely be due simply to the intensity of the inflammation, seeing that the precursory local disturbance is only very moderate, and that the usual issue of high inflammation of the soft palate is suppuration rather than sloughing. We must look to some already existing predisposition lurking in the system which gives this peculiar direction to the morbid activity. Constitutional syphilis suggests itself immediately to our consideration. Is this the latent vice that converts a harmless sore throat into a penetrating sloughing ulcer? Strong support appears in favour of this supposition. We have seen that in the second case—the woman Jane Bloxam—the sloughing arose while the patient suffered from syphilitic lepra of undoubted character. The boy Whyte, too, may, without much improbability, be looked on as a syphilitic subject. And it is worthy of remark, that in the mother and son the disease broke out about the same time, after lying dormant for fourteen years. The cause of this coincidence of time is, most probably, to be looked for in the unusual distress which had entered the family from loss of employment, entailing insufficient food and anxiety of mind, lowering the tone of the system, and consequently the power of resistance to morbid tendencies.

In the first related example no positive indication of syphilitic taint could be obtained; the girl denied consistently that she had had primary sores or secondary eruptions; but when it is remembered that this patient lived in circumstances especially favourable to the contraction of venereal complaints, and that, on her own confession, she had not been altogether continent, her case would not stand strongly in the way of concluding for a syphilitic cause, were there not other circumstances which tend to militate against the unreserved adoption of this view.

In the first place, the last of the four cases yields no trace of syphilis; on the contrary, the affection of the palate seems very distinctly traceable to an attack of erysipelas extending to the mouth twelve months before, and which had left an abiding depression of the vitality of the parts, and thus rendered them an easy prey to the lowest type of inflammatory action. This case, I am disposed to think, furnishes the key to the series, as I shall presently try to show. But a second argument, why this form of sloughing is not specially syphilitic, lies in the character of the sore itself. It is notorious that this sudden onset, and equally sudden cessation of the destructive action, is at variance with the usual progress of a syphilitic ulcer, which spreads either by a gradual ulceration, or more rapidly by phagedænic erosion; whereas the ulcers I have described are neither serpiginous nor phagedænic, but a slough suddenly forms, it separates in due course, and the resulting perforation or chasm heals forthwith, or if there be delay, it is simply a pause before reaction. This succession of events seems to correspond exactly to what would occur if a hot iron or caustic potash—any strong mechanical or chemical irritant—had been directly applied to the velum so as totally to destroy the vitality of the tissues within reach, the parts around being left almost uninjured.

Neither the previous history, nor the course and characters of the sloughs, give any support to the idea of an exclusively strumous origin. My own conviction is that no specific blood state lies at the root of these penetrating ulcers, but that they arise from ordinary causes acting on debilitated constitutions, and that this debilitated condition may proceed from various circumstances: from previous disease; overwork, bad food, bad air, and bad clothing; from these abetted by a strumous diathesis; from any depressing constitutional taint, and more especially the syphilitic. In propounding this hypothesis, I am aware of the embarrassment it involves from supposing that a specific taint may, in part, be the cause of a lesion which itself is not specific in character. But are there not such things? A syphilitic or strumous patient fractures his femur; instead of uniting in eight or nine weeks, the fragments are loose at the end of the third or fourth month. The surgeon will tell you that the constitutional taint is the cause of the non-union; and yet there is nothing peculiar or specific in the character of the morbid process; the same may result whatever be the cause of lowered vital action. It might also point to the course frequently taken by wounds or burns in the same class of persons. They refuse to heal, take on an untoward action, and yet they cannot be said to have assumed the special characters of strumous or venereal sores.

In all the four cases it is easy to make out a previously debilitated health. The girl, whose history I have related first, had been brought down by close confinement and prolonged labour with the needle. A whitlow had formed a twelvemonth before—a sure indication of a health below par—and ever since a weakly anæmic state had continued. The next case had been lowered by an obstinate syphilitic eruption. The third example, the boy, was in health on the setting in of the complaint in the throat; but he was a syphilitic subject, and had, with his mother, been for some months out of work, and living on poor commons. The last instance had suffered from a very severe attack of erysipelas; and even the palate itself had partaken of the morbid movement. A long abiding debility had followed this, kept up by bad food and damp dwelling.

Of one thing no doubt can be entertained: that an asthenic state co-exists with these ulcers, and it seems not unreasonable to conclude that this asthenic state has a prime influence in determining the occurrence of this peculiar ulcer. Taking this view of the pathology of these cases, the treatment flows naturally. The cause of the depressed vitality must first be discovered, and cod-liver oil, quinine, mineral acids, and iron exhibited according to circumstances. The topical treatment demands no special comment. At first, a chlorinated gargle should be used, and followed up when the slough separates by the local application of lunar caustic to the unhealed surfaces. A lowering plan of treatment is of all things to be most avoided.

HOSPITAL FOR SICK CHILDREN.

OPERATION FOR IMPERFORATE ANUS: SUCCESSFUL.

Under the care of Athol A. Johnson, Esq.

Rebecca N., aged 23 days, was admitted an out-patient, under Mr. Johnson's care, on July 26th, on account of malformation of the rectum. There was a narrow fistulous orifice in the back part of the vagina, just behind the situation of the hymen, sufficiently large to admit a moderate-sized probe, from which the fæces were exuding. There was no anal orifice, and the parts in that situation were hard and firm. A probe introduced into the fistulous orifice passed backwards and upwards into the rectum, a space of about three-quarters of an inch separating it from the skin in the site of the natural opening. The child had thrush, and strained a good deal in attempting to pass fæces. It is the first child. No deformity is traced in the family.

Operation. A probe was introduced into the fistulous orifice, and its point pressed downwards towards the fundament. A free incision was then made into the soft parts in front of the coccyx down to the probe, which was then made to protrude through the wound, and the latter enlarged with the knife sufficiently to allow a No. 10 catheter to be passed freely into the bowel. Fæces then came through the wound. The parts cut through were firm and solid. There was moderate hæmorrhage.

July 28th. The child is going on well. The catheter is removed. There is much less straining. Fæces are discharged freely through the wound, and in small quantities through the fistulous orifice.

The wound was kept open by the passage of a bougie, daily at first and then at increasing intervals. A little of the fæces still comes through the fistulous orifice in the vagina. The child's general health has much improved; and the wound, at the date of the last note (Sept. 21st) showed no disposition to close.

ST. MARY'S HOSPITAL.

I. CASE OF IMPERFORATE ANUS, THE RECTUM OPENING INTO THE VAGINA: OPERATION: DEATH.

Under the care of S. Lane, Esq.

[*From Notes by* A. Talbot, Esq.]

Mary Anne King, aged 4½, was admitted into St. Mary's Hospital, under Mr. Lane, July 27th, 1858, for congenital deficiency of the anus, and incontinence of fæces. The mother stated that an operation had been performed when the child was a year old, but it proved unsuccessful, the fæces, as before, passing *per vaginam* in a liquid state almost constantly and always involuntarily. The condition of the child of late years rendered her a most pitiable and disgusting object, so that the mother was most anxious something should be done for her relief. The health of the patient up to a month or six weeks from her admission had continued good, but latterly she had become rather haggard and lost flesh. When admitted, the abdomen was found to be excessively distended with flatus, and much increased in size. The fæces passed away *per vaginam* constantly and in a liquid state.

On examination, there was found to be an old cicatrix (faintly visible) in the situation of the anus, but no anus now existed—an opening about three-quarters of an inch from the vaginal orifice entering into the rectum, through which the fæces passed; a probe bent into the form of a hook, passed through this opening, could be made to project against the perinæum.

The operation was performed on the 29th, under the influence of chloroform. An opening was first made in the situation of the anus, and the rectum above reached, and finally the parts between the newly-formed anus and the vagina from the recto-vaginal fistula above to the integument below were cut through, thus laying the two passages into one. The mucous membrane of the rectum could be traced on its posterior wall to within half an inch of the integument. Little or no bleeding occurred. The after-treatment consisted, for the first week, in keeping oiled lint between the recently-cut surfaces; and later, enemata were given, but although the pipe of the syringe could be readily passed three or four inches, the injection always returned: mild purgatives were occasionally given after this, but with slight effect. The abdomen still remained very distended and tympanitic, and there was very little diminution in size; the fæces, as before, passed away involuntarily and in a liquid state; the child's health appeared to fail. On the 19th August, sickness and diarrhœa came on, followed by collapse, from which she could not be rallied, and she died on the morning of the 20th, twenty-four hours after the attack, and twenty-three days after the operation.

Thirty-six hours after death the body was examined. The cavity of the thorax was very much encroached upon by the abdominal viscera, so that its capacity was diminished fully one-third. The lungs and heart were healthy. The lower part of the abdominal cavity was occupied by a piece of large intestine, enormously distended by flatus; on tracing this, it was found to be the rectum and sigmoid flexure of the colon, which were dilated into an immense reservoir, capable of containing five pints of fluid; the muscular coat was greatly hypertrophied. This large sac occupied the pelvis, the hypogastric, both iliac, and part of the umbilical regions, pushing the small intestines upwards, and concealing the cæcum and the parts of the colon in the iliac fossa: it contained nearly a pint of liquid fæces. All the large intestine was much dilated, the transverse colon particularly, being larger than in the adult, and the sacculi nearly obliterated. The small intestine was empty and partially collapsed; it was nearly hidden by the distended portions of bowel. The liver, pushed up by the transverse colon, reached the third intercostal space; healthy in structure. The kidneys were healthy, but altered in form, from the compression to which they had been subjected by the colon. The mesenteric glands were slightly enlarged. The rectum and vagina had a common opening. There was an unhealed incision, about an inch in length, through the posterior wall of the vagina and perinæum. The rectum, for about an inch above its junction with the vagina, was contracted, so that the little finger only would pass, and then it expanded into the large sac mentioned above. The vagina was between four and five inches long; the uterus small. The bladder was natural; the meatus urinarius was in its normal position.

Remarks. The two cases of imperforate anus which we have reported above offer considerable analogy to each other, inasmuch as they both occurred in female children, and in both the communication between the bowel and the vagina allowed of the passage of some fæces. This is, no doubt, a more favourable condition than that in which the gut ends in a mere blind sac; and there is little reason to doubt that an effectual operation, if performed as early in Mr. Lane's as in Mr. Johnson's case, would have led to an equally favourable result. In the former case, however, the continual strain upon the rectum had distended it to a size of which it is hardly possible to give an adequate idea by description, and which almost precluded the idea of permanent recovery. There were several difficulties in the treatment of this case, among which may be mentioned the unusual length of the vagina, and the narrowness of the orifice of the rectum when it entered the latter tube. This naturally caused the failure of the enema-pipe in entering the rectum, and prevented the benefit which might otherwise have been obtained by washing out the bowel. The object of the operation was only that of temporary relief, viz., to give exit to the fæces, and so relieve the tympanitic condition of the abdomen; but a further operation would one day have been necessary, to close the opening into the vagina. This will also perhaps be necessary in Mr. Johnson's patient, though here the much more favourable conditions of the case allow of the hope that the opening may close spontaneously. This point, and the condition of the opening as to sphincter power, will afford interesting matter for future observation, if the child should fortunately be kept under the notice of the hospital authorities.

II. FRACTURE OF THE LOWER JAW TREATED BY A NEW APPARATUS.

Under the care of James Lane, Esq.

John Sale, aged 32, was admitted into the Hospital September 13th, 1858. He had fallen from a cart, the wheel of which had passed over his head, causing a fracture of the inferior maxillary bone, with extensive contusion of the left cheek and side of the head, and a lacerated wound of the left ear, which nearly separated the pinna from its connexions. The fracture was situated a little to the left of the symphysis, commencing between the central and lateral incisor teeth, and extending with a slight obliquity downwards and outwards to the lower margin of the bone. There was a fissure in the gum, corresponding to the fracture, about half an inch deep in front,

and three-quarters of an inch deep behind. There was vertical displacement at the seat of the fracture, to the extent of about three-quarters of an inch, the left side being depressed; and antero-posterior displacement of about three-eighths of an inch, the left piece having been forced backwards.

The usual bandages were applied, with the effect of bringing the two pieces of bone to the same horizontal level, but without result upon the antero-posterior irregularity. An attempt was made to remedy this by tying the teeth together with silk, but no improvement was obtained. On September 15th, Mr. Lonsdale's apparatus was employed, at first with good effect, but, its hold upon the teeth not being sufficiently close, the displacement next day was found to be as great as ever. The patient by this time was in a very uncomfortable condition. Every movement of the mouth, and especially deglutition, was attended with severe pain. He was profusely salivated; the saliva, mixed with blood and pus, was continually flowing out of the corners of his mouth. He complained greatly of the cumbersome nature of Mr. Lonsdale's machine, and of the extent to which it kept his mouth open. On the 16th, therefore, Mr. J. Lane, thinking that the ivory plates attached to Mr. Lonsdale's apparatus, might be modified in such a way as to take a firmer and closer hold of the teeth, applied to Mr. Howard Hayward, who, in the absence of Mr. Sercombe, was acting as dentist to the Hospital. Mr. Hayward, however, suggested a different mode of proceeding, which has been found to effect the object desired in a very perfect and complete manner. The fractured ends being held in accurate apposition, he obtained, with some softened wax in a shallow dentist's model tray, an accurate model of the ten anterior lower teeth, and of the gum for half an inch in depth before and behind. From the wax mould a model in plaster of Paris was taken; from this a *fac simile* in zinc, and then a matrix in lead. He then, by means of the models, constructed a silver plate to cap and fit the teeth and the gum to the depth of half an inch in front and a quarter of an inch behind. To the upper surface of this plate, close to its posterior part on each side, was soldered a stout piece of silver, doubly curved, so as to arch forwards to the angles of the mouth, and turn round them on to the cheek, but without touching it. The next morning, the fracture being again set, the silver plate was dropped into its place over the ten front teeth, and was found to retain the broken ends in perfect apposition, and, by taking so extensive and close a hold upon the teeth, it effectually prevented any movement in the antero-posterior direction. To prevent the risk of movement of the fragments upon each other in the vertical plane, a simple splint of gutta percha was fitted to the chin and cheeks, and retained there by a bandage. The silver hooks which projected from the corners of the mouth were tied with waxed thread to a hole in the splint, on a level with the mouth on each side. This contrivance retained the jaw in exact apposition, occupied scarcely any space in the patient's mouth, and allowed the upper and lower teeth to be brought almost close together, enabling him to speak and eat immediately without pain, neither of which he had been able to do since the accident.

The apparatus has been retained up to the present date (October 4th). The fractured surfaces have never moved upon each other in the least, nor has he suffered any pain since its first adjustment, more than a fortnight ago. The fœtid character of the oral fluids has discoloured the silver plate, but the coating of mucus prevents any further chemical action, excepting at those parts on which he masticates. If necessary, it could be removed, cleaned, and replaced, in five minutes.

Shortly after its application, the salivation subsided; and there is now no discharge from the neighbourhood of the fracture, and scarcely any offensive odour about the mouth.

Mr. Hayward states that the entire contrivance only occupied seven hours in construction, inclusive of the first modelling in wax and a few minutes in application. It has certainly proved, in this instance, a most effectual mode of dealing with a very troublesome injury.

III. PERMANENCE OF THE CURE OF PROLAPSUS UTERI BY OPERATION.

We had an opportunity of seeing, the other day, in the theatre of this Hospital, a case which strikingly illustrated the advantages of the operation for prolapsus uteri in appropriate cases, and proved how permanent is the cure which is so obtained. The patient had been under Mr. Baker Brown's care rather more than a year previously, on account of total prolapse of the womb. She had shortly before been delivered of a child at seven months, the os uteri being at that time outside of the vagina. Mr. Brown performed the usual operation, and with success. The woman again became pregnant, and has lately been delivered of a full-grown and rather large child. The new perinæum, though so much deeper than the natural one, has resisted the strain upon it, and was not ruptured in the least, only the extreme edge of the skin being cracked, as is usual in many labours. The patient was submitted to a careful examination by several of those present, and there could be no question as to the perfect integrity of the newly formed parts. The uterus also was perfectly in place, and the cure seemed in all respects complete.

Transactions of Branches.

EAST YORK AND NORTH LINCOLN BRANCH.

TWO CASES OF POISONING BY PHOSPHORUS IN LUCIFER MATCHES.

By Sir Henry Cooper, M.D., Physician to the Infirmary, Hull.

[*Read September 23rd.*]

The recorded cases of poisoning by phosphorus are not very numerous, nor are they sufficiently definite or complete to determine with precision the physiological action of the poison, or the course of symptoms which indicate its action; and yet the constant and familiar use of this substance in every household at the present time, in the form of lucifer matches, and the extreme carelessness of servants and others in their employment, render poisoning by phosphorus, especially in the case of children, a very probable event, and give an interest to the observation and study of the subject.

Like all other irritant poisons, phosphorus has a double action; its first local irritant effect, and its secondary action on the nervous system. Further, the preponderance of one class of symptoms over the other is determined here, as in other irritant poisons, by the dose. A large dose destroys life very speedily, in the same way as corrosive poisons, mineral acids, or the like, destroying the tissues, and overwhelming the vital powers in a few hours. Of this form of poisoning by phosphorus, numerous cases are on record, and show no features worthy of particular remark, or that would not be inferred from the known chemical and physiological properties of the substances employed. But where a single small dose of phosphorus has been taken, which has been insufficient to produce local effects, the secondary effects on the nervous system are remarkably deferred; the period of incubation, so to speak, is very slightly marked; and the invasion of the secondary symptoms sudden, violent, and very rapidly fatal. In this respect, slow poisoning from phosphorus differs from slow poisoning with other irritants. In the latter, symptoms similar to those which ultimately prove fatal, though milder in form, are more or less obvious from the period of the poison being taken; and frequent renewals of the dose are necessary to keep up the poisonous effects, and produce the fatal result. The importance of this difference, in a medico-legal point of view, is too obvious to need further comment here; and it is equally obvious that the practitioner is very likely to make a false diagnosis, and, in fact, to have no suspicion of the real nature of the case (unless the history happen to be particularly clear), until the fatal result renders all knowledge and speculation useless. A case recorded by the late Dr. Sheppard of East Stonehouse, in the *Lancet*, December 1843, may be referred to as tallying in a remarkable manner with those about to be narrated. There is some reason to think that children are much more susceptible than adults. (See *Case of Lucifer Match Poisoning* (300 matches), *and Recovery:* Taylor.)

Case. Two healthy children, aged 4 years and 18 months respectively, were found, on the morning of August 3rd, 1858, sitting on the stairs and playing with red-tipped lucifer matches. On being taken from them, it was found that the ends had been bitten off; and the elder boy admitted that he had bitten or sucked them, and given some to his younger brother. The box (which had contained seventy-five matches, and was nearly full) was found empty, a few having been scattered on the floor. The mother does not seem to have taken alarm; nothing occurred during that day to create uneasiness. The following day, the children were remarked to be languid, unwilling to exert themselves, less ready for food, and somewhat restless at night. This state continued without change till

Sunday, the father suspecting that they were sickening for some eruptive fever. On Sunday, the elder boy becoming worse, Mr. Fullam was sent for. The symptoms he observed were those of ordinary febricula. There were no specific symptoms; and, though the history of the lucifer matches was given, there seemed no special ground for connecting them with the illness. At midnight, Mr. Fullam was summoned in haste, and found the boy in violent convulsions, collapsed, and pulseless. He had vomited decomposed blood and mucus, and purged highly offensive matter, dark and grumous, evidently containing blood. Mr. Fullam remained two or three hours, when there was some abatement of the convulsions; and he returned home. In an hour or two, however, he was again summoned, the messenger stating that the elder boy was dead, and the younger one had begun to be convulsed and exhibit similar symptoms to those under which his brother had died. Mr. Fullam called me up, and we went to the house together. The symptoms exhibited in this second case were extreme prostration, evident and severe abdominal pain, vomiting of bloody mucus, and purging of offensive mucus without blood. No convulsions occurred while we were there, but there was no reason to doubt the correctness of the mother's account that convulsions had occurred at the time she sent. This condition continued the same during the day, except a partial rally for a few hours. The feet became œdematous; and, as far as could be ascertained, the secretion of urine was suspended. During the night, there was a recurrence of the convulsions, and he died at an early hour on the following morning. Priapism was noted in the latter case only.

The coroner ordered a *post mortem* examination of both the cases, the results of which, taken at the time, I have before me. They were nearly identical in both cases, and may be thus summed up:—

1. Healthy appearance of exterior, except pale yellowness of surface.

2. Liver pale yellow, deeper than skin; hard; no bile in gall-bladder.

3. Mucous membrane of stomach more or less intensely congested; deep stains of dark purple at cardiac orifice and larger curvature. Mucous membrane very soft, and easily wiped off with the finger, taking the stain with it. No ulceration or open vessel could be detected. The stomach was congested externally, and contained dark grumous decomposed blood, similar to what was vomited.

4. Intestines of natural colour, but alternately distended and extremely contracted. In one point, invagination of three inches of intestine had occurred.

5. Kidneys enlarged and congested.

6. Blood fluid, dark, viscid, and grumous. No smell of phosphorus or phosphorescence.

There appears, I think, no room whatever to doubt that these two deaths were produced by poisonous doses of phosphorus taken on August 3rd. The composition of the paste with which the matches are armed, as given by Dr. Ure, is as follows: Phosphorus, four parts; nitrate or chlorate of potash, ten; glue, six; red lead or ochre, five; smalt, two; or about one part of phosphorus in every seven parts of the paste. It appeared in evidence, that fifty or sixty matches had been bitten or sucked. Each match, on an average carrying one-sixth of a grain, will give ten grains of paste as the quantity consumed, which would contain nearly a grain and a half of phosphorus, of which we may assume that the elder child took a grain, the younger half a grain.

We cannot but be struck with the close analogy between the phenomena remarked in these cases, and those of *blood-poisoning* by the more subtle agency of animal or zymotic poisons. We have the same small and unrecognised quantity of the agent employed; the same period of incubation or suspension of characteristic symptoms; the same outbreak of specific symptoms at a stated period—that of maturity; and lastly, the same indication of deteriorated or disorganised blood, both during life and in the appearances after death.

CASE OF RUPTURE OF UTERUS IN THIRD MONTH OF PREGNANCY, FROM TUBERCULAR DEGENERATION OF THE FUNDUS.

By Sir Henry Cooper, M.D., Physician to the Infirmary, Hull.

[*Read September 23rd.*]

The uterus is not an organ usually chosen for the deposit of tuberculous matter. Out of two hundred cases of phthisical females, Louis only met with three who were affected with tuberculous diseases of uterus; and the experience of subsequent observers has not materially varied this proportion. When the deposit does take place, the fundus is its favourite seat; in this respect we notice a marked and almost diagnostic distinction from carcinoma, which always attacks the cervix, and only affects the other parts of the organ secondarily and by extension.

Tuberculosis of the uterus has been generally observed in subjects who exhibit decided tendency to tuberculosis, and who are, at the same time, affected with similar deposits in other parts of the system, particularly the peritoneum and the organs which it envelopes. It has not been remarked, so far as I have ascertained, during the period of gestation, or in persons in other respects well nourished and in good health. I do not here include cases of tuberculous disease of the fœtus and placenta, of which cases are in record, but in which the uterus is not necessarily involved. In these and some other respects, the case I am about to relate presents peculiarities and conditions of interest, which could not certainly have been guessed at without the demonstration afforded by a *post mortem* examination.

A healthy looking woman, about 30 years of age, married two years, had a miscarriage eight or nine months ago, and presumed she had fallen pregnant shortly afterwards. Three months ago, however, she had a recurrence of the menstrual discharge; but had seen nothing since, and supposed herself now to be pregnant. During the whole of this period she had suffered from pains in the back, and anomalous feelings of sinking. In other respects she was in perfect health, and was a person of remarkable vigour and vivacity. In the last week of July she danced the greater part of a long evening, and otherwise much over exerted herself; two days afterwards (July 30th), in getting out of bed, she felt a sudden severe pain in the lower belly, and became very sick and faint. She was found by her medical attendant cold, pulseless, collapsed, complaining of excessive pain in the back and lower belly, and vomiting; there was a slight bloody vaginal discharge. From this state she never perfectly recovered. On the following day she was tolerably free from pain, but blanched, prostrated, and vomiting; tympanitic abdomen; the bowels had not acted for two days. She sank gradually; and died without further symptoms on the 1st August.

On *post mortem* examination the body was found very plump and well nourished, having nearly two inches of fat on the abdominal parietes. Much bloody serum was found in the abdomen, the organs of which were, in other respects, healthy. The pelvic cavity was occupied by large coagula; there might be four pints of blood altogether effused. The uterus was found to be ruptured at left angles of the fundus, and a three months fœtus, with placenta partially detached, protruded from the opening. The wall of the fundus of the uterus itself was so thin, that the part of the placenta remaining in the cavity, or the finger inserted into it, could be distinctly seen through it. On close examination, the proper structure of this part of the uterus was found to be converted into a friable, cheesy, or curdy mass, which rubbed away readily under the finger, and, in fact, offered no resistance whatever to any distending cause. At the part of the fundus above indicated, this change had gone on till only the membranous investment was left, and in one part even this had given way, and produced the catastrophe. The cervix was quite healthy and closely contracted, nor could any other indication of disease be discovered. The lungs were not examined.

It is interesting to inquire when this disease commenced; whether it was present during the former pregnancy, and produced the miscarriage, (in which case conception must have taken place, and decidua formed in the second pregnancy in spite of it); and whether this may not have been the cause of death in other cases presenting a similar history, but where the cause was not elucidated by a *post mortem* examination.

DEATH FROM A WOUND BY A NEEDLE.

By John Dix, Esq., Hull.

[*Read September 23rd.*]

George Jack, a healthy infant, eight months old, was brought to me, about 2 p.m., March 21st. He was screaming bitterly, evidently in acute pain. He had been taken in-doors in this condition a few minutes before by an elder child, who had carried him out for an airing. The mother directed my attention to the right side of the abdomen, where, on examination, I found about midway between the lower ribs and the crest of the ilium, a minute puncture as from a needle. About an inch

above this the skin was slightly elevated by a foreign body prominent beneath. This projecting point rose and fell with the screams and respiration of the child; and so, under the active and immediate influence of the diaphragm, it was freely moved up and down beneath the integuments, without perforating them. To the finger it felt like the head of a needle, and such it was ultimately found to be. There was considerable emphysema of the abdominal wall, and the child was in a state of depression approaching almost to collapse.

I made an incision over the needle, but failed to seize it with the forceps, and in my attempts to do so, amid the struggles of the infant, it was driven inwards and was no more seen. A little bloody serum drained from the cut; air also came bubbling through.

Late at night I found that the child had been well dosed with castor oil, and also with white mixture by way of *quietus*. Dyspnœa, lividity, coldness of the surface, and a feeble rapid pulse, were the general symptoms. The needle could not be felt.

Next morning the lethal weapon was again prominent beneath the skin; but it was now situated more than an inch higher up than the place of the incision, where it had projected on the former day. It had still no fixity, but receded from the touch of the finger. From this circumstance, in conjunction with the evidently sinking condition of the patient, I thought it prudent to make no further attempt at extraction, which would probably be again futile, and, if successful, could not avert the fast approaching termination of the case. About an hour afterwards the child died.

Here is the fatal needle *in situ*, as found on dissection. It enters the right side of the chest between the cartilages of the eighth and ninth ribs, passing below the free edge of the lung without wounding it. At this part it immediately penetrates the convexity of the diaphragm, and so taking a direction obliquely upwards and backwards, it traverses the upper portion of the right lobe of the liver, and again finding its way into the chest it transfixes the lower lobe of the lung, and its point is at last arrested by the spinal column. This miniature bayonet is a common darning needle three inches in length broken through the eye. There had been no bleeding whatever, but the lung was completely collapsed and compressed, by the escape of air into the pleural cavity; and this sudden shutting up of half the breathing apparatus was probably the immediate cause of death. How the needle came there was never ascertained.

I relate this case rather as a pathological curiosity than as a practical study; and an examination of the specimen will probably be of more interest to this meeting than hypothetical deduction, or theoretical commentary of mine.

Introductory Lectures.

UNIVERSITY COLLEGE.

DR. WALSHE, Professor of the Principles and Practice of Medicine in the College, and Senior Physician to University College Hospital, delivered the introductory address. He remarked that a philosopher of the last century, Condorcet, adopted as one of the subjects of his speculative inquiries the future destiny of man. Under discouraging circumstances, during the plenitude of the horrors of the French revolution, he calmly worked at his problem, and arrived at a solution diametrically opposed to that which might have been anticipated. That solution stood—that man, as a species, was not only susceptible of improvement beyond any standard then or previously attained, but that there was no limit to his perfectibility—that intellectually, morally, and physically, his future promised an amount of perfection of which the mental faculties of the day were incapable of even imagining an outline, much less of grasping in detail. But when the immediate influence of these mingled poetic and prosaic pleadings had passed away, the practical man, the cold-hearted man of facts, asks, is this fabric of earthly beatitude all reality? is there a share of truth in it? or is it all a very dream? It is said that there is no sensible amelioration of man in the essentials of his being—intellectual, moral, and physical: in intellect he has stood still, in morals retrograded, in physique degenerated. At our highest point of mental elevation we have not shown ourselves wiser than Plato; at our most advanced stage of ethical development we have sunk below the standard attained by the immediate disciples of ancient moralists; in the harmony and completeness of physical endowment we have taken from the typical perfection of antique Greece—from the matchless models that inspired him who chiselled the Venus or the Apollo. And this is the reply when highest individuals are compared with highest individuals. A yet more gloomy view is taken when the *οἱ πολλοί*, the masses of past and present eras, are placed side by side; this disastrous view reaches its climax with those who maintain that progressive degradation, mental and bodily, is characteristic of the age, will be of succeeding ages, of all time.

Dr. Walshe then proceeded to consider the question in its moral and physical aspects, and having brought forward a variety of facts and considerations displaying the conditions of past and present men, in regard of public morals, the influence of those upon health, the physical constitution of man, his personal attributes, longevity, the movement of health, the amount and quality of disease in past and present, the reality or non-reality of the alleged existence of morbid races of men, the characters and relative fatality of diseases at different periods of the world's history, recapitulated as follows the conclusions of his general argument. It would appear that there is no evidence that man's stature, brute strength, or animal strength, are on the decline, or that with the march of time he has degenerated in form or facial beauty. It would appear that, so far as the influence of civilisation on human health is concerned, a middle term is the true one; civilisation removes certain evils, but intensifies some, and creates yet others of her own. But good vastly predominates, morbidity lessens, life lengthens (even assurance offices are practically forced to admit that), and the evils created by civilisation she is capable, by self-improvement, of removing. In morals there is no positive evidence of deterioration as the world grows older, but the "progressists" would find it difficult to make out a case; it seems a drawn battle between ancient and modern vice. In regard of intellect, it is of the last importance that we distinguish between mental power itself and the proceeds of that power, between the faculty of achieving and actual achievement. That the moderns outstrip the ancients in the quantity and quality of the intellectual results they have obtained is merely to assert a truism; but we have no proof that the abstract dynamism of the brain has increased in vigour or improved in quality. Amongst the earliest observers of the stars there may have been Newtons; Plato's subtlety of thought was not inferior to that of Kant; Sappho sung as probably no male bard since has sung. How nearly did Hippocrates anticipate the immortal discovery of Laennec! But the modern has the practical advantage over the ancient, that a starting point of the accumulated experience of ages, a presentation of facts in varied aspects, and a mass of fundamental principles ready determined for use, are placed within his reach, and often has he gloriously utilised them. Yet let him not thence imagine the Deity has impregnated his brain with an essence more rife with perfect power than the organ of the great of old. The environment and the starting point of both differed: that is all. As to social utilitarian advancement, that we have left the ancients far, far behind in the race, can scarcely, it would seem, be questioned. We are told, it is true, by Dr. R. Knox, that "in Cicero's time the Island of Rhodes presented a civilisation which no part of Great Britain can at this day pretend to;" and that "monumental records, artistic remains, architectural designs, and utilitarian plans, prove beyond all question that the ancient races of men were at least equal, if not superior, to the modern." But how small seem all the antique strivings after utilitarian civilisation, when we compare them with the achievements of to-day, when we see the Anglo-Saxon conquering time and space by his application of natural forces that were as powerful before the deluge as they are now, as ready then to obey his will, had man known how to command them, as they at this moment prove.

Dr. Walshe trusted he had in some measure succeeded in showing that truth, sought from a medical point of view, lies between the two extreme dogmas he commenced by setting forth, and that progress has been going forward; that yet further advancement is probably obtainable, and that the generous enthusiasm of Condorcet approaches more nearly to the reality of nature than the cold disenchantment of Knox. And by what means may that advancement be best promoted and accelerated? By the extension of good government, by improved popular education, secular and religious, and by sanitary science.

Of the influence of good government on public health, mental and bodily, no doubt can be entertained; stability of political institutions is as favourable as the reverse is unfavourable to the physical well-being of the masses. Esquerol boasted he could write the history of the French revolution from the character of the insanities prevailing at its different periods. All forms of despotic coercion are, on the other hand, while hostile to intellectual development, probably promotive, unless they be grindingly severe, of mere vegetable activity. Popular education, such as shall enable the masses to understand the elementary practical points of political economy, social morals, and hygienics is the next agent of importance. Fear not that these truths may be made intelligible to the humbler ranks. It is a mere delusion to suppose that scientific facts can only be rendered clear in a special language of their own. It was believed the main propositions of physics could not be demonstrated without the aid of refined mathematical technicalities till Neil Arnott arose to prove the fallacy of the notion. Mere instruction of the people in reading and writing, which has commonly passed for education, is valueless. In education lies the best safeguard (unfortunately I cannot pretend a sure one) against alcoholism. At all events it is not a Maine law that will coerce the insane passion of the sturdy Saxon or irritable Celt; already the Forbes Mackenzie Act is pronounced a failure. But highest amongst all powers in ameliorating the physical condition of mankind ranks sanitary science, that which best teaches the masses to secure the *mens sana in corpore sano*; that which most invulnerably arms man for his incessant combat with those extrinsic influences that tend to injure or destroy him. "God sends acute diseases, man makes chronic ones himself:" so says Sydenham. But since the time of that great man who therein announced but a part of the truth, we have learned that a large share of the gravest acute disease—that which cuts down a population at the period of life when it is most useful to the state—is of our own production, and as assuredly preventible by sanitary measures as alcoholism is by the eschewing of spirituous liquors.

In conclusion, Dr. Walshe said,—To whom is the world indebted for the knowledge of the influence exercised on the physiology of nations by government and political institutions, public morals, ratio of population to area inhabited, colonisation, climate, physical geography, geological and other characters of the soil, material exhalations, animal viruses, urban or rural habitation, trade and occupation, social position, food, drink and stimulants, drainage, insulation, ventilation, fuel, even fashion and dress, and a multitude of other agencies it would be tedious to enumerate? Who watches these agencies at work, and traces them to a demonstrable or a probable final term in the individual or the stock, in the nation or the race? Who suggests means of cure or prevention for some, of amelioration for others, of the evils involved? Through whose intellect and whose toil have statesmen and legislators obtained the principles of sanitary science? One of the political quarterlies some time since told its readers nothing in the way of sanitary improvement was to be looked for from the medical profession, their interests were so clearly involved in the continuance of a low standard of public health. And how far have the medical profession justified the despicable slander, debasing even the sordid soul that made it? You have created sanitary science; you have gone forth preaching its doctrines, demonstrating its principles; you have disarmed prejudice; you have borne down opposition by the honesty of your purpose, and the manifest benefits of your work; you have founded journals to disseminate hygienic truth. Pioneers in the practical toil, you have not shrunk from jeopardising life—you have sometimes met death; at least, you have refuted the scribe in the quarterly. You may well be proud of your profession, which, while it cares for the individual, concerns itself also with the masses, with the species, indirectly purifying the morals, vivifying the intellect, and lengthening the mean span of existence of mankind at large. Yours, too, is a profession to which, more than any other, Providence seems to have assigned the sacred missions of unfolding certain forms of material truth, and of standing forth a solid bulwark against false superstition and unrighteous fanaticism as opposed to genuine piety and holy religion—a profession which plays a large part in the glorious drama of civilisation—a profession which less rightfully than none may inscribe on its banners those words which in a mundane point of view epitomise the teaching of Christ on earth—those words which are the sublimest in the language—"Liberty, Charity, Truth, and Progress."

KING'S COLLEGE.

Mr. Bloxam, Professor of Practical Chemistry, delivered the inaugural address. He said, the student of the present day came endowed with all the refinements of modern education and manners, and it would be both superfluous and in bad taste to admonish him of those vices and follies which used to form the staple topic of introductory discourses. The lecturer would first say a few words about what the student had to expect from his profession. Ingenious writers upon the economy of manufactures generally illustrated the advantage of a division of labour, by referring to the number of persons concerned in the manufacture of a pin; and yet they triumphantly exclaimed, "This pin, the result of so much contrivance and the representative of so much labour, is sold for a minute fraction of a farthing." Now he scarcely knew whether they would consider it very complimentary if he compared this pin to the finished medical student, who had been so carefully sharpened at school and polished at home, upon whose head so much labour had been expended by the staff of lecturers upon anatomy, botany, chemistry, etc., before he was turned out to be inspected by Hall and College, and pronounced fit for the service of the public. Might he venture to push the similitude a little further, and to exclaim with surprise at the very disproportionate value which was set upon this finished and highly-wrought article by that many-headed creature which was commonly called a discerning public. No other profession could boast so great a share of that intrinsic dignity which consisted in true usefulness, in occupying a position from which its occupant could not be removed without leaving a very perceptible blank. Without any want of courtesy or consideration for the members of other professions, he could conceive it quite possible for a community to enjoy such unanimity and so little taste for litigation as to dispense with the services of the bar. Lately, a highly respectable party would have been quite willing to put an end to the military profession; and examples were not wanting, however much they might condemn them, of misguided societies without clergy; but he never heard or read of any collection of persons deserving the name of a society or community who were without representatives of the medical profession; nor could that profession cease to be indispensable as long as the human body exists to suffer from accident or disease.

The professor dwelt at some length on the advantages of teaching by lectures, more especially on those subjects which required practical illustration, and remarked that he had known many a student who had turned away in disgust from a chapter upon chemical affinity or the articulations of the skeleton, become a zealous admirer of chemistry and anatomy, under the influence of the earnestness of purpose and appropriate illustrations of his respected colleagues in those departments. Some advice followed on the deferring the main portions of studies until the last years of studentship, and then being obliged to have recourse to the system of "grinding." The examinations at the College of Surgeons are henceforth to include anatomical demonstrations upon the subject itself, which will have the effect of rendering any system of mere cramming perfectly useless, and will compel the student to learn his anatomy in the only legitimate way, by dissection; but he will not have spent a week in the dissecting-room without having learnt that he cannot dissect hurriedly with advantage, and that it would be in vain to endeavour to crowd the necessary amount of dissection into the third year.

During the period of his education the student would do well to refrain, as far as possible, from any frivolous pursuits. Relaxation is indispensable; for if the physical constitution be enfeebled by too severe study in youth, it will not be able to meet the numerous demands upon the health and vigour which occur in active practice; but it is the mode of taking that relaxation which calls for a word of advice to the young student. The error is far too common of mistaking dissipation for relaxation, and of imagining that it is necessary to seek for diversion in the theatres and other places of amusement which abound in the metropolis. The lecturer could not concur with those who maintained that merely changing the subject of study is in itself a sufficient relaxation. The bow must be occasionally entirely unbent; and the London student has so many facilities for enjoying agreeable society, and for engaging in pursuits which release the mind for a time and contribute to the improvement of bodily vigour, that he need never be at a loss for a mode of occupying his leisure. There are many reasons why Saturday afternoon may be conveniently devoted

to such recreation; and the lecturer had never had occasion to regret those hebdomadal boatings, cricketings, and pedestrian feats which were dotted in bright colours here and there in his own student life. The studies connected with the profession of medicine are the less likely to overtask the mental powers because they are not of a purely abstract nature; the learner may witness, day by day, the practical application of the principles laid down by his teachers, and has frequent opportunities of employing his own observation to eke out an imperfect description.

After some remarks on the importance to the student of hospital practice, on the excellence of King's College Hospital, and on the electric telegraph as illustrating the practical utility of scientific investigations, the lecturer called attention to some interesting features in the connexion between medical science and certain recent discoveries in chemistry. In the present state of our knowledge, the chemistry of the components of the animal frame must be regarded as one of the most difficult and unsatisfactory portions of the science. This was by no means to be accounted for by any want of endeavour on the part of the chemist to analyse these substances: on the contrary, few compounds had been made the subjects of so many and so laborious investigations. Of the class of bodies commonly spoken of, the proteine compounds, albumen, fibrine, and caseine we knew and had long known that they contain carbon, hydrogen, nitrogen, sulphur, and phosphorus, but we were altogether destitute of any precise ideas as to the mode in which these elements are arranged in the combination. So it was, some years ago, with the animal fats, until Chevreul discovered that they could be resolved, by the action of alkalies, into glycerine, stearic, margaric, and oleic acids. Another fatty substance, cholesterine, had even until very lately baffled the chemist in his attempts to investigate its true nature. It was found to contain carbon, hydrogen, and oxygen in similar proportions to those which occur in other fatty bodies, but it could not be classed with these, for it did not resemble them in their most important property of forming soaps with the alkalies. Within the last few weeks Bertholet has published evidence that cholesterine really belongs to the class of alkalies— a discovery which is the more interesting because the substance known as ethal, which forms a large portion of spermaceti and presents a close resemblance in its character to cholesterine, had long been known to belong to the same class. The lecturer strongly recommended that the medical man and the chemist should labour in concert in inquiring into the various conditions which influenced the public health. The inquiry into the causes of the excessive mortality which prevailed showed us, in the most convincing manner, that there still prevailed among us a lamentable ignorance of, or inattention to, those conditions which were indispensable to the maintenance of health. "Then there arises," said the lecturer, "a great cry, echoed by all ranks, from the hereditary legislator down to Jack plying for coppers on the river-stairs, that we are inhaling the most virulent poison from our much valued and much polluted river. From the remote date when London consisted of a few huts upon the banks of the Thames, down to this present middle of the nineteenth century, all the offscourings of the population have been hurried out of their sight into this devoted stream; and we can now only wonder at the beneficent arrangement by which the natural flow of the river has hitherto swept the bulk of that enormous deposit down into the ocean. About two hundred tons of the solid sewage, sent down the river daily, are composed of animal and vegetable matter in a state of active fermentation or putrefaction, continually evolving certain gases, more particularly carburetted hydrogen, carbonic acid, sulphuretted hydrogen, and ammonia. It is inferred, perhaps with justice, from chemical considerations, that, whilst this fermenting matter is kept in continual motion by the river-water with which it is mixed, it is not likely to be productive of any serious mischief, because our great natural disinfectant, the oxygen of the air, dissolved in the water, is brought to bear upon it; but when some choice portions of this fermenting matter have been left by the receding tide upon the bank, to seethe and bubble in a July sun, the various gases are disengaged into the surrounding atmosphere. And the most vexatious feature of this agitated question is, that we cannot be said yet to know the worst of it. It seems exceedingly probable that certain other poisonous gases are exhaled, which are not perceptible by their odour, and have not yet been caught and named by the chemist, but which the medical man generally includes under the name of miasmata. The chemist has only good reason to infer that these atmospheric poisons are organic in their nature, and are therefore very likely to be producible by the fermentation of the deposit of sewage matter. He also has every reason to believe that he can render these poisons harmless by the use of chlorine and chloride of lime; so that, if the chemist could be allowed fair play with these substances, the public would have no reason to complain of his inability to help them. Many circumstances, however, preclude the possibility of resolving this great question by the application of these chemical agents, and the matter appears to rest at present entirely in the hands of the engineers. Meanwhile, all chemists look with regret upon the prospect of continuing to throw away that manure which we have to bring back again to our fields or market-gardens at a great cost. But they are nearly all now convinced that we cannot, at the same time, effect this desirable saving and preserve that decency and cleanliness of our streets and dwellings which our high state of refined civilisation demands. In the settlement of this vital question the medical man can now be of far more service than the chemist. He can collect and digest evidence as to the coincidence of certain types of disease with certain conditions of the atmosphere surrounding our dwellings, and can examine the relation existing between the health of particular districts, and their situation as regards the offending river.

ST. THOMAS'S HOSPITAL.

Dr. Bristowe delivered the inaugural address. After a few introductory remarks, the lecturer addressed himself to those who were about to enter on their hospital career. He urged them to preserve all those lessons of knowledge and of good, to the acquisition of which their previous life had been devoted. He recommended them to be careful in the choice of companions, and pointed out that the chief danger arose not so much from positively vicious companions as from those who were unsuitable; from those, on the one hand, who were idle and careless; and from those, on the other, who had money at their command, and who, though innocent themselves, led by example those with less means into thoughtless and criminal expenditure. Medical knowledge was to be acquired by three separate, yet mutually illustrative means—by lectures, reading, and attendance in the wards and other practical departments of the hospital. It was a common remark, that students were over-lectured, to which remark he gave a qualified assent. Students were really required to attend too many lectures, yet the lectures were by no means out of proportion to the subjects which had to be learnt, but the subjects themselves were too numerous and too extensive for the limited time allotted to their acquisition. He advised them strongly, however, to be constant and attentive at lectures; for, regarding every different branch of knowledge as an unknown wilderness to those who were entering on it for the first time, lectures were as guides, pointing out the objects of interest, and leaving the students masters of a route whence future investigations might safely diverge. He then dwelt on the importance of reading, as a means of acquiring knowledge. Reading should not be desultory, but should have a definite object; it need not be copious; but it was essential that it should be close, exact. Lectures and reading were, after all, merely accessory to the practical knowledge which was to be acquired in the laboratory, the dissecting-room, the dead-house, and the wards of the hospital. He warned them, however, not to embark, while in a state of pupilage, on original investigations, for they would find the acquisition of the knowledge already accumulated ample occupation for the present time, and the best apprenticeship to original inquiries hereafter. They should not be too fastidious in their learning, but believe as much as possible; though not blindly; for if they believed what they were taught, they would take a greater interest in it, and more easily learn. Doubt and scepticism would come soon enough; and it was better that these feelings should come after they had made good progress on their journey in life, when they would have strength to overcome their depressing, yet in some respects salutary effects, than that it should sicken them in the beginning of their studies, and put a bar to their progress.

He went on to point out the necessity of acquiring experience, but warned them against misunderstanding the meaning of the word. True experience was obtained, not by length of years, but by close, accurate, continued, and recorded observation; he recommended them, therefore, not to be anxious to observe much, but rather to work thoroughly, exhaustively, at a few things. He urged them to become practical men; but the truly practical man was not, as was too often supposed, he that neglected to refresh his mind by reading, and refused to avail

himself of all the light that science threw on his mysterious art, but he that had acquired a thorough mastery over the details and principles of his profession.

Dr. Bristowe urged the students to contend for the prizes that were offered by the authorities of the medical school. The prize system was a good one, though liable to abuses; it was, in fact, a part of that system by which the whole proceedings of mankind were regulated—a system by which the Almighty had rendered this life, not a continuous painful effort with one final reward alone, but a succession of efforts and rewards, culminating in that final one of eternal rest. He urged them, therefore, to contend for the prizes, not making them the exclusive objects of their ambition, but employing the encouragement they offered as an aid and incentive to the performance of their duty. He concluded with advice to the students who were about to leave the hospital, and chiefly to those who had contended for the prizes. Those who had failed, he exhorted not to be disheartened; for they had obtained the victory over that idleness, that want of courage, that contemptuous indifference which had kept some aloof from the contest. In the efforts made, they had obtained knowledge, in comparison of which medals are dross; they had gained the approval of conscience. Those who had obtained the prizes had undoubtedly manifested superior excellencies in certain qualities of mind; they had shown that they had the power of acquiring and arranging knowledge, of recalling it readily, and of expressing it rapidly and clearly; but surely it does not necessarily follow that they were the most learned men, the deepest thinking, the most energetic actors, or that they were endowed in any degree with any of those transcendant gifts which confer distinction or fame in literature or art. To the prizemen he said, if you regard the prizes you are this day to receive as objects of secondary importance, and value them only as the external indications of positive advance in knowledge and worth; if your conscience tells you the praises heaped upon you are disproportionate to your merits, and you believe your conscience; if you look at your medals as incentives to renewed exertions, and credit your excess of praises to the account of future deserts; if your successes, instead of rendering you vain, have made you humble, depend upon it you deserve the rewards you have striven for—they have done you good. You are in the right path; go on and prosper.

GUY'S HOSPITAL.

The inaugural address here was delivered by Thomas Turner, Esq., the treasurer of the hospital. He would have the students to believe that the governors of the hospital were not indifferent to the lustre which the institution derived from the distinction and the reputation of its students, and still less must they suppose them blind to the advantages conferred upon the country at large by that numerous body of practitioners who year by year leave the hospital, and who disseminate through all parts of the British territories the knowledge, experience, and skill which they had there acquired. He warned them against confining attention to the more aggravated cases, and neglecting the less severe. He believed that there was no case admitted into that hospital from which there was not a great deal to be learned; and that a student would do well to familiarise himself with the incidents and progress of comparatively simple disorders, and to make sure that he understood them before he proceeded to the analysis of those of a more complicated description. But there was an error of an opposite description, against which a warning might be requisite. The popular cry at the present day was against overlecturing. There was some foundation for it; but the cry was loud, and it was naturally so agreeable to the ears of students, that he thought there was some danger of its leading to the undue neglect of one of the most important instruments of medical education. There could, indeed, be no doubt that if a student should devote himself to the lecture-room, either to the sacrifice of dissection or of attendance in the wards, he would commit a grievous mistake; but he believed that this was a not very common case. He advised the students not to rest content with hearing and repeating general phrases—such as "a shock to the system", "general decay", and so on; but always to endeavour, as far as might be, to get at the bottom of what they meant, to understand the physical conditions which they represented. Another great benefit which they would derive from attention to precision would be, that they would not be misled by false systems of nomenclature. They would discover that the names which were given to things were to a great extent the representations of theories, of which many indeed were legitimately founded upon an extensive induction of facts; but others were of very doubtful authority, and some absolutely exploded. They would not take for granted, for instance, that all the so-termed zymotic diseases presented any phenomena akin to fermentation. Mr. Turner concluded with some excellent observations on the dignity of the medical profession, and advice to the students as to the spirit in which they should follow it.

WESTMINSTER HOSPITAL.

Dr. Frederic Bird delivered the inaugural address. After some introductory observations, he urged the students to remember the greatness of the object that had brought them there. Their mission hereafter would be a noble but an anxious one, for there is not in society a more important position than that of the medical attendant at the bedside of disease. Even to the well-taught son of science it is ever an anxious duty. From that far distant time when the Old Man of Cos wrote for all ages his divine aphorisms, to that recent year which gave to humanity the priceless discovery of Laennec, the mind passes in grateful recollection over names which in all times and countries have claimed gratitude in life and reverence in death. It recognises not only great men, whose lives were associated with the study of medicine, surgery, or anatomy, but includes in its retrospect those who have strayed into the pleasant fields of philosophy and literature, and have bequeathed to posterity names which time will not destroy. It recognises men of great medical attainments, who in the dark hours of public necessity have given up their lives for their country's welfare. Those memorials are fragrant flowers in the picture of the past—sweet notes of that music of the heart which never falls in richer cadence than when man brings his unbribed help to aid his fellow man in the burden of his sorrows. Nor are such loved sounds without their echo in our own day. Witness the devotion of the whole profession when the plague of our time was rife, and when closed houses and deserted streets told of the pestilence that

> "Terrible marches thro' the mid-day air,
> And scatters death."

Then, without thought of fee or reward—often, too, without hope of escape from the ravages of the disease they sought to combat—they remained faithful to their high trust till the hand of desolation was stayed. Not least, nor rarely represented in the list of heroes on whose breasts the modern recognition of valour, the Victoria Cross, reposes, and whose names will hereafter blazon the pages of their country's history, are many members of our great profession, who have gained their honours, not only in the active exercise of their appointed duties, but often when combining with it the functions of the soldier. Could the acts of public charity and private aid rendered by medical practitioners to their suffering fellow-creatures be estimated, it would outweigh all other practical charity. There is no ostentation in all this; the public medical officer who gives his aid to the sick or wounded man brings for the relief of the sufferer all his laboriously and often dangerously obtained knowledge; he regards no anxiety as too great, no exertion too much, even although it lessen his own health, if he can save the life committed to his care. In the private exercise of his calling, the conditions are scarcely dissimilar, for inadequate indeed is the *honorarium* of the physician or fee of the surgeon, compared with the benefit often conferred. Days and nights of intense anxiety are often passed in the watching of some almost hope-destroying malady; and when he has been permitted to save the life, it may be, of the scion of some great house, his intrinsic reward rarely exceeds that which would hire an opera box or purchase a court suit. Supported by an approving conscience; sustained by a mind tutored by the education it has received, he sees a higher recompense than any fees can give him in the honest fulfilment of a sacred office, and is content with the reward. He reveres the duty he has done, and leaves all glory as the garb earth puts on vanity—

> "Virtus, repulsæ nescia sordidæ,
> Intaminatis fulget honoribus,
> Nec sumit aut ponit secures
> Arbitrio popularis auræ.
> Virtus, recludens immeritis mori
> Cœlum, negatâ tentat iter viâ;
> Cœtusque vulgares et udam
> Spernit humum fugiente pennâ."

After some advice as to the course of study to be pursued, the lecturer proceeded: "There is so much that is great and good

in your calling, that is rich in encouragement, and such promise of abiding reward, that you may well bear with the injury and neglect which the practitioner of medicine, as of other professions, sometimes meets. Quackery on the one hand, and the tardy recognition of great medical services by the State on the other, must sometimes awaken unwelcome feelings in the breast of the good and deserving; but quackery must exist until ignorance and credulity are expunged from the category of human frailties; it is their natural food, and will never want dishonourable purveyors. There has been no age, and there probably never will be one, unmarked by the prevalence of some form of medical charlatanism. It is not more rife now than in days of yore, although it may be said that one phase of it has been more strongly supported by fashion than others. The most prevalent medical quackery of the present day is what is, in an appropriate defiance of etymology, called homœopathy. It is to be deeply regretted (and the regret must in justice be tinctured with censure) that legitimate practitioners are indirectly giving encouragement to homœopathy by discussing its imaginary merits. No one in the profession should permit himself to pander, even in the most indirect manner, to such worthless deceptions. By considering them as real things an importance is imparted to them, and a greater excuse and facility afforded for their adoption. By one of these certainly able authors it is laid down as a moral condition, that the medical attendant shall not desert his patient even when he desires to seek the ignorant rule of the charlatan. But what is this but an indirect permission to place himself in professional communication with the grossest class of impostors the world has known; to sanction the degradation of our great profession to the level of the huckster; to place its high honour in bondage with blatant falsehood, and make its humane associate the associate of the thing which battens on disease and sorrow? Happily you enter the profession at a moment when the legislature has done something towards maintaining the character of the profession, and of enabling the public (if they will profit by it) to learn the status of every medical practitioner. That law, which, whilst I now speak, comes into operation, has been the result of much care, is probably far from perfect in its detail, but is unquestionably of great value; it very nearly excludes all access to quackery. I say very nearly; for at the very moment when this worse than Lernæan hydra was almost annihilated by the Herculean labours of the profession, the Bill about to become law was seared with a clause empowering the examining boards to sanction medical heresies. Let it neither be any source of discouragement to you that great medical services are rarely recognised by the State. It seems to be a condition of the constitution of this country to evince ingratitude to all those whose scientific or literary labours have helped to raise it to its present eminence among nations. The accident of parentage or the attainment of wealth alone seems to claim admission to high class honours. A successful stockbroker and a leviathan ironmaster, who have become millionaires, pass to the peerage; while the now nameless author of the gas illumination of our streets died in a workhouse; and that splendid adaptation of science to utility—the electric telegraph, has brought no decoration to the breast of its inventor save that which a foreign potentate has affixed. Still the medical profession is not more neglected than any other application of science or learning. Newton but now receives honour in the place of his birth; Jenner—our Jenner—the benefactor of the whole human race, has but now a public statue in Trafalgar Square, in noble companionship with the greatest naval hero the world has known, whose unfinished pedestal still speaks neglect. Time may remedy this "tortive and errant" justice. In your day it will be enough to be encouraged by the consciousness of having contributed more than others to the alleviation of human suffering.

"Whilst here, let your conduct be marked by respect for your seniors, for each other, and for that vast gathering of misfortune which, out of its accumulated misery, affords you the means of knowledge. Many years ago, when the pupil of my revered friend Sir Anthony Carlisle, he encountered in the wards a coroneted simpleton, who sauntered through them with his hat on. 'Take off your hat, my lord,' said Sir Anthony, 'not out of respect to me, but for the afflicted occupants of these beds, whose misfortunes raise them above your nobility.' When in the necessary brevity of clinical language you speak of this or that case, I would pray you to remember that the definition of the word involves a fellow-creature who, wounded by sorrow's shaft, comes in anguish and in sickness to beg the aid of your teachers, and at the same time give knowledge to yourselves—in simple gratitude you will treat their afflictions with respect. In the exercise of that power which your profession will give you, lives will be daily dependent upon the knowledge you may here obtain; wounded spirits will turn to you for comfort, the secrets of an erring life will be often confided to you, and the means of much good and much evil placed in your hands. It is no part of your prescribed duty to trespass upon the sacred function of the minister of revealed religion, but you will often receive far greater confidence than he may claim. Use it aright, remembering always the words of our great Sydenham, that you must one day give an account to the Supreme Judge of the lives committed to your care, and that whatever skill or knowledge under Divine blessing you may acquire must primarily be given to advance the glory of God and the welfare of mankind."

Periscope.

HISTORY OF MEDICINE.

BLOOD-LETTING IN PNEUMONIA.

The following is a copious abstract of an interesting paper which would have, had time permitted, been read by Dr. G. W. Balfour, at the recent Meeting of the British Medical Association. It has been published in the *Edinburgh Medical Journal* for September 1858, under the title of "Hæmatophobia: an Historical Sketch."

The cause of the important change which has within the last few years taken place in the therapeutics of inflammation has been differently explained. One party alleges that an improved method of diagnosis, corrected by an advanced knowledge of pathology, has taught us to treat diseases, and especially pneumonia, better and more successfully than our forefathers; while another suggests that the type of disease has changed, and as pneumonia is no longer the virulent disease it was, it no longer requires the same heroic remedies. A more extended historical inquiry will rather induce the reflection, that this enlightened practice has been originated by neither of these circumstances, but has been forced on all alike by a successful empiricism, whose success alike now and in bygone ages, and whose perfect agreement not only with the advanced pathology of to-day, but also with that of a far earlier date, proves not more the eternal regularity of nature, than the unchangeable certainty of the fundamental principles of our art. For history teaches us that hæmatophobia is no new medical whim—no nineteenth century fallacy of the faculty, it points to the far off verge of our medical horizon, where, side by side with those brilliant luminaries which yet irradiate our medical world, we see this star of heresy—if heresy it be—arise; and still, as years roll on, and men change and opinions become modified, we find the same fundamental theories inwoven with and influencing our medical practice, the same bitter controversies raging; one party lauding blood-letting as the only remedy for every ill, and counting their triumphs by their bleedings; another looking on it as a source of much evil, and seeking even to banish it altogether from medicine.

It may not be possible to trace, in one unbroken line, the connection between the Hæmatophobists of the present day and those of early history. Men of undying reputation have, in all ages, successfully practised and maintained the non-necessity for blood-letting in acute diseases, side by side with those holding diametrically opposite views, showing clearly the question to be one of opinion, and not of principle; while the earliest pathological reasons for not bleeding are fundamentally the same with those urged now-a-days.

Pythagoras was the first to attempt to unite the scattered facts of medicine with the whole realm of thought and knowledge into one vast philosophic system. Viewing the microcosm—man—as but an epitome of the macrocosm—the universe—he regarded the diseases of the one as analogous to the storms of the other, and both as depending on the strife of the four sacred elements of which they were composed. Placing the seat of the soul and of life itself in the blood, he denounced blood-letting as a needless waste of life, and in this was followed by a long line of distinguished disciples, from Empedocles to Chrysippus of Cnidus, whose disciple, Eudoxus, was the teacher of the world-renowned Erasistratus. Perhaps the earliest human anatomist, Erasistratus, was also a wise physician, and as such set his face against the monstrous polypharmacy of his

day; asserting that the skilful use of a few simple remedies was infinitely preferable to the random hit of a compound mixture. Reverence for the Pythagorean precepts of his master induced in him an abhorrence of blood-letting, which he was the first to sustain by pathological reasons, and to support by the statistics of his practice. Opposed in this matter to most physicians of his day, he founded a school which transmitted his opinions and his practice down to the time of Galen himself, more than four hundred years, and counted among its members many whose names are well known to fame. At Rome, in the second century, the followers of Erasistratus were so numerous and distinguished, that it was personal, quite as much as abstract scientific controversy, that prompted Galen to write his celebrated thesis, "De venæ sectione—adversus Erasistratum." Yet even this powerful appeal, fortified by the no less powerful example of Galen, proved insufficient to annihilate the anti-venesectionists; for one of the few distinguished names we yet read of, is that of Jacobus Psychrestus, archiater to Leo the Thracian, a foe to bleeding, and withal so successful in his practice, that his adoring patients believed that the soul of Esculapius resided in him.

We see then that from the time, when under Pythagoras, physicians first became philosophers, down to that night of science which followed the fall of Rome, the practice of not bleeding never wanted distinguished expositors, who adhered to it chiefly as a correct logical deduction from the Pythagorean apophthegm, that the blood is the seat of life—a dogma no less physiologically correct, whether with Moses, Pythagoras, and John Hunter, we state it as a simple fact; paraphrase it with Pliny and Van Helmont, in saying that the blood is inseparably connected with the vital spirits; or adopt the modern version of this paraphrase, and say with Dr. Bennett, that the blood is a fluid imperatively necessary for those nutritive changes—physiological and pathological—which constitute life. But Erasistratus not only reprehended the danger of blood-letting, but he argued that it must be useless, inasmuch as the abstraction of mere fluid blood from the veins, could not affect that which had already escaped into the arteries and there coagulated, and which by disturbing the march of the *pneuma*, was the cause of the fever which existed, but that the removal of this coagulum (exudation) must be trusted to the powers of nature, aided by a rigid diet, a statement, which, considering the time it was made, more than 2000 years ago, and the limited knowledge of anatomy and physiology then possessed, is in wonderful unison with what are now the received doctrines respecting the treatment of exudation.

The contrast to all this is to be found in the origin of blood-letting, which can boast of no such philosophic source. Setting aside, as absurd and irrelevant, Pliny's fable of the Hippopotamus, the first recorded instance of venesection is the haphazard but lucky hit of Podalirius; and when we remember his great reward, and the propensity of mankind, when in doubt, rather to be active than passive, we can scarce wonder at the rapid and wide spread of the practice of venesection. Hippocrates, our earliest medical author, nowhere alludes to it as a recent invention, but rather gives reason to infer that it had been long in use. From his writings has been deduced the theory, that the therapeutical use of blood-letting was founded on those critical hæmorrhages which sometimes precede the crisis in acute diseases, early venesection being propounded as a mode of anticipating the natural evacuation, and hastening the crisis, cutting short the disease,—a most plausible idea, but unfortunately devoid of either logical or pathological sequence.

There is nothing in the early history of medicine to lead us to suppose that bleeding was the remedy *par excellence* for inflammation in general, or for pneumonia in particular; on the contrary, even in the writings of Hippocrates himself, many cases of pneumonia, pleurisy, etc., are related, in which there is no mention of blood-letting. Asclepiades, active enough in general, never bled in pneumonia; and even Celsus, who abused bleeding so far as to employ it in cachexias, was very sober in its employment in thoracic inflammations. Still blood-letting, though not as yet appropriated as the best or exclusive treatment of inflammation, was employed sufficiently often by one class of medical men to constitute it a distinguishing mark. The bleeders and non-bleeders lived side by side, and their names have descended together to these later days, as alike famous. Chrysippus flourished about the time of the third Hippocrates, and was the cotemporary of Praxagoras of Cos, the discoverer of the pulse and its indication in disease, and who laid down certain rules for the proper practice of bleeding. Praxagoras' pupil, Herophilus, was the cotemporary of Erasistratus; and, like him, founded a school, which transmitted his doctrines and his method of treatment, including the practice of bleeding, down to the time of Galen, the great venesectionist, whose practice and writings form the most elaborate defence of bleeding the world has yet seen, and were still alike powerless to convince or convert the opposite party.

In the long night of science which followed the downfall of Rome, medicine took refuge among the Arabs, who seem to have revolved in the cycle of Greek opinions; never very fond of bleeding, their mode of practising it was peculiar, for, regarding it as unfavourable to coction, and as a mere evacuation, they did not practise it during the increment of the fever; while this continued, the patient was kept forcibly awake, but when it lulled, and the crisis approached, he was bled and allowed to sleep, and no doubt the weary wretches hailed the lancet as the divinest boon of heaven to man.

After the rebirth of science in the sixteenth century, opinions continued to be much divided respecting blood-letting, some regarding it as indispensable, others assuming its occasional necessity, and a third party rejecting it altogether. One of the most distinguished of the latter party was Van Helmont, born at Brussels in 1577. Regarding plethora and congestion as errors of his *archæus*, and the blood itself as free from blame, he saw no good to be attained by its detraction, more especially as exudation could not be thereby hindered, nor could it, once occurred, be thus evacuated through the vein; moreover, he pointed out the serious injury that might arise by lessening the mass of vital spirits circulating with the blood, and clearly demonstrated the evils consequent on over-bleeding. Van Helmont's warning voice had scarcely died away, when Lucas Antonius Portius published his remarkable work, *De Sanguinis Missione*, in which, in a series of imaginary dialogues between Erasistratus, Willis, Galen, and Van Helmont, the subject is viewed in all its bearings, and the conclusions drawn, that blood-letting is no certain remedy for any disease; that its omission is never a cause of death, while many have died from the effects of blood-letting alone; lastly, that it evacuates no precipitate or *materies morbi*, is of no service where there is any precipitate or coagulum (exudation) in any part of the body, corrects no humours, and is of necessity followed by no certain result, except that the quantity left is lessened, that therefore it should never be employed except where, from sudden afflux of blood to a noble part, the integrity of its vessels is threatened.

The promulgation of the discovery of the circulation of the blood by Harvey, in 1628, occasioned the construction of various hydraulic theories of disease and its treatment; hence the torrents of diluents with which Bontekoe inundated his patients; hence, too, the sanguinary fury which Botalli exercised, whose practice does not more astonish by its boldness than by the success which crowned it. Unconvinced and unconverted, the anti-venesectionists found no mouthpiece for nearly a century, and then in the person of a veterinarian, Herr Wolfstein, who, placing with Pythagoras and John Hunter the seat of life in the blood, and regarding with Stahl inflammations and fevers as salutary efforts of nature, rejected blood-letting entirely from their treatment.

Sallaba, his opponent, attempted to defend the system of Stoll, his master, by translating and annotating Galen's celebrated thesis, *De venæ Sectione*, etc.; but, finding this to be inefficient, he boldly attempted to compromise the matter, by declaring both Wolfstein and Stoll to be right, and that the reason why that could be, must be sought for in the varying yet constant influence of the season on the epidemic constitution—in change of type, in short.

But the case admits of no such compromise. It is true that Sydenham is currently quoted as an authority for æsthenic epidemics of pleurisy; it is equally certain, that from the state of pathology in his time, he was not prepared to make any nicely accurate diagnosis between true pneumonia and pneumotyphus; and his own writings bear out the assertion, that it is to the latter disease and not the former that he refers; for in speaking of the opinion, current even in his day, that in some years pleurisy is found so malignant as not to bear its usual bleedings, he expressly says, that "true and essential pleurisy, which runs rife under all constitutions of all years, will tolerate a repetition of venesections. When, however, it happens, as it sometimes does, that the *proper epidemic fever of the year*, from some sudden alteration in the manifest qualities of the atmosphere, deposits the morbific matter of the lungs or pleura (the fever remaining nevertheless the same)—in such a case, I say, that although venesection may be allowed in an extreme form of the symptom in question, the general rule must be,

that the bleeding be apportioned to the fever that generates the symptom, rather than to the symptom itself; since it is with the fever that the symptom either stands or falls." (Sydenham Soc. Translation, vol. i, p. 229-30.) And it is certainly a remarkable corroboration of this view of the matter, that those other epidemics which have been classed along with his as decided examples of change of type in the pneumonia of former days, and of which we possess full accounts, bear at least a close resemblance to what would now-a-days be classed as pneumo-typhus, and have nothing in common with those numerous cases which have been treated without blood-letting, under the care of Fleischmann, Skoda, etc., except cough and difficult breathing. In the so-called epidemic of asthenic pleurisy at Edinburgh in 1736, the disease commenced by bilious vomiting, pricking pains about the lower ribs, difficulty of breathing, and slight cough; the blood, when drawn, was brownish, yellowish, or greenish, and hardly coagulated. In the famous epidemic described by Huxham, which occurred in 1745-6, the pulse was small and feeble, the fever nervous in character, and attended by tremors, subsultus tendinum, and sweatings; there was atrabilious diarrhœa, black tongue, and coma, while the blood-clot was seldom buffy, mostly florid and loose. Both of these epidemics, then, in the accompanying phenomena, and the state of the blood, convey at once the impression that they are no true pneumoniæ, and differ widely from what has been described as such in all time. Such epidemics have no bearing on the treatment of true pneumonia, having been long known and acknowledged not to be tolerant of blood-letting, seeming even to be referred to by Hippocrates, when he says, that "pains in the side that are moderate, in fevers without the eminent signs, are hurt by blood-letting, more especially if there be an aversion to food, and a swelling of the hypochondrium or liver."

As if to show how little theories regarding type had to do with the use or non-use of blood-letting as a general treatment, we find Bordeu, writing about the same time as Huxham, remarking that towns were divided between the rival claims of the physician, the friend of bleeding, and the physician its foe. Izès made a large fortune at Paris by the number of his daily bleedings, while at that very time Jussieu almost never bled. In the beginning of this century, Dumangin of La Charité, almost never bled for pneumonia; yet his success was at least equal to that of Corvisart, who bled largely. Laennec thought he had annihilated the mortality of pneumonia, by large doses of tartar emetic, at the very time that Gregory thought that large bleedings could alone cope with so formidable a disease; while Bouillaud, then as now, placed implicit confidence in his *coup sur coup* method of bleeding; and Alison taught, that in the treatment of pneumonia "uncomplicated and recognised from its commencement, the utmost confidence may be placed in general blood-letting, which should always be large", etc., at the very time that Skoda taught that the tendency of pneumonia was not to dissolution but to resolution, and that rapid restoration to health was best promoted by withholding those heroic remedies generally prescribed, and amongst them blood-letting. Experience had taught him this, not change of type; but a few years previously he had been a staunch venesectionist; at the time I first knew him most of his colleagues were so still. His nearest neighbour in the hospital bled largely and freely, and was quite satisfied with the results obtained.

Modern pathology has no doubt rectified many mistakes into which a refined physical diagnosis had led physicians, and by clearly explaining the *modus operandi* of the treatment, has rendered it more easily adopted by a certain class of minds; just as the spread of civilisation, its vices, its malaria, and overwork of both body and mind, has rendered a proportion at least, of our population, less tolerant of blood-letting in disease than our less refined forefathers, and so enabled another class of minds more easily to adopt the non-bleeding system. Yet the whole course of medical history tends to teach us, that though blood-letting has been practised in all ages, it has been necessary in none. Its opponents have clearly shown that it corrects no humours, evacuates no *materies morbi*, and has no influence over exudation; while those of its advocates who have most ably investigated its use, have distinctly proved that it cannot cut short the disease, prevent exudation, or jugulate any symptom; while so little influence has it over those phenomena which may be supposed to precede inflammation, that it is precisely in the case of those who have lost much blood previous to the occurrence of inflammation that have most to dread a fatal termination; and in commenting on a fatal case of this character, one of the greatest clinical teachers of this or any other age (Dr. Graves), commences by the strong assertion, that the first consideration suggested by it is, "the tendency which excessive depletion produces to the formation of inflammation."

We are not wiser than our forefathers, only more advanced. Our fundamental principles are still the same; and of we apply them more skilfully, it is only because the diffuse vague light of their day has been collected by a hundred scientific mirrors, and brought to bear on each separate point. Only because in our day the mournful wail of Baglivi has been answered by the glad Eureka of Laennec; and chiefly because the greatest practical error of our day has taught us the power and extent of the truth it abuses.

British Medical Journal.

SATURDAY, OCTOBER 9TH, 1858.

THE MEDICAL COUNCIL.

Now that the Medical Act has come into operation, increased anxiety is naturally being felt as to who are to be the members of the Medical Council. On this subject, but little is known with certainty; much, however, is floating in the way of rumour, which may or may not prove correct, but which, as far as we have been able to collect it, we give, warning our readers to take it only for what it is worth. Some of our contemporaries have prematurely intimated that the six Crown nominees of the Council have been chosen. From all that we can learn, however, from inquiries in well-informed quarters, there is not the least foundation for this statement. Of course, it is very easy to make a tolerable guess as to whom the Crown will appoint; and we may remark that there is a considerable concurrence of opinion as to several of the Crown nominees. For example, it is generally said, that among the six will be, Sir James Clark, Sir Charles Hastings, Mr. Simon, Dr. Christison, and Dr. Stokes. At the same time, we believe no final decision has been come to, and that Her Majesty's Government are only solicitous to put "the right men in the right places," and are yet open to representations from all quarters.

The elections by the Corporations and Universities are being proceeded with; and the names of three gentlemen have already been publicly announced as having been chosen; viz.

Dr. Aquilla Smith, chosen to represent the King and Queen's College of Physicians in Ireland;

Dr. Robert Carlisle Williams, lately President of the Royal College of Surgeons of Ireland, chosen to represent that corporation; and

Dr. Charles Henry Leet, Secretary, and late Governor of the Apothecaries' Hall in Ireland, chosen to represent that body.

The election of these three members, Drs. Smith, Williams, and Leet, constitutes all that is positively known. Regarding the remaining members of Council, the following are the prevailing rumours.

It is not expected that the University of London will elect its representative for some weeks. There are three vacancies in the Senate, which are not likely to be filled up until the middle of November; and there is, we hear, a feeling among some of the members of Senate to defer the election of their representative in the Council, until an opportunity has been afforded to the general body of graduates of exercising the privilege conferred on them by the new charter, of sending a

member of their own body to the Senate. Two gentlemen are spoken of as probable candidates for the honour of representing this University; viz. Dr. Gull, member of the Senate of the University, and Fellow of the Royal College of Physicians; and Dr. Storrar, who is looked on as more thoroughly an university man, and is said to be most in favour with the graduates from the circumstance of his having been their chairman during the protracted and anxious deliberations which led to the grant of the new charter. We believe that a wish has been expressed by some leading members of the Senate to elect Sir James Clark; but that he has declined the honour.

There is, we believe, no doubt that Dr. Acland, the Regius Professor of Medicine in the University of Oxford, will represent that seat of learning. In the University of Cambridge, Dr. Fisher, Downing Professor of Medicine, is spoken of as the representative. For the Royal College of Physicians of England, it is reported that the Conservative Fellows desire to return Dr. F. Hawkins; the liberal party, which last week obtained a decided majority, are said to think of Dr. Alderson or Dr. Watson.

Other gentlemen named as probable members of Council are, Mr. Lawrence, for the Royal College of Surgeons of England; Mr. Tegart, for the Society of Apothecaries; Dr. Embleton, for the University of Durham; Dr. Corrigan, for the Queen's University in Ireland; Dr. Apjohn, for the University of Dublin; Dr. Andrew Wood, for the Royal College of Surgeons of Edinburgh; Dr. Begbie (or, in the probable event of his declining office, Dr. Alexander Wood), for the Royal College of Physicians of Edinburgh; Mr. Syme, Professor of Clinical Surgery in the University of Edinburgh, for the Universities of Edinburgh and Aberdeen; Dr. Lawrie, Professor of Surgery, or Dr. Allen Thomson, Professor of Anatomy, both in the University of Glasgow, for the Universities of Glasgow and St. Andrews; and Dr. James Watson, for the Faculty of Physicians and Surgeons of Glasgow.

Such is the amount of all the facts and rumours regarding the Medical Council, that we have been able to collect.

For the office of Registrar, there are several candidates in the field. Of these, Dr. Francis Hawkins, of the Royal College of Physicians, and Dr. Cormack, are said to be about to come forward with good prospect of support: while Mr. James Bird and Dr. Edward Smith have also been mentioned.

THE COLLEGE OF PHYSICIANS AND THE NEW MEDICAL ACT.

If, on the morrow of the Reform Bill, an attempt had been made by the boroughmongers to bring back the system of election to the corrupt old practice that flourished when George the Third was king, it would have been a somewhat parallel movement to that which has just been made by the *Consiliarii* of the College of Physicians with respect to the election of a representative to the new Medical Council. On Thursday week, at a meeting held at the College, to settle the knotty point which had been left open in the Bill itself—Who shall elect?—this select and microscopic body submitted through their registrar, Dr. F. Hawkins, the following motion to the numerous body of fellows present: "That it should be referred to the *Consiliarii* to consider whom it will be proper for the College to choose as member of the Medical Council, and to report to the College thereon."

As may be imagined, the large body of Fellows present—naturally believing that the inauguration of a Medical Reform Act was the proper moment for a liberal construction of the question, What makes the College? half-a-dozen office holders, or the entire body of members?—objected to the method of quietly referring this important matter to their select vestry; and accordingly Dr. Sieveking moved as an amendment to Dr. Hawkins' resolution, that "That it be left directly with the Fellows to elect a representative to the Medical Council." We rejoice to say this pertinent amendment was warmly supported by Dr. Alderson, Dr. Copland, Sir John Forbes, and Dr. Markham. The discussion, as may have been expected, was warm and animated; it was the old *régime* against the new, progress *versus* stagnation and privilege, the first note of coming change, or the dogged iteration of the lotos-eater's cry, "Let us alone". The issue of this preliminary struggle was therefore very important, and we rejoice to say it was in favour of the more liberal view of the question, What is a College? By a majority of more than two to one, Dr. Sieveking's amendment was carried; and henceforth the Fellows will relieve the *Consiliarii* of the duty of nominating and electing the representative to the new Council, for to that it really amounts, inasmuch as no one likes to take upon himself the invidious task of objecting to a given name, however they may demur to the right of the body which nominates. We trust this victory will convince the authorities of the College that the intelligence and the numbers of their body are against them—at all events it will serve as a guarantee to the profession generally, that a good man will be elected, and that the thin edge of the wedge has been got in, which will only require a little gentle pressure to be driven home. How the Fellows are to elect, is a question still to be settled; this will be arranged, doubtless, at the meeting to be held this day at the College.

The Meeting at Freemasons' Tavern, on Tuesday, of general practitioners, opened ground on a point we have long advocated—the necessity for the election upon the Council of some representative of the interests of this important body in medicine. We trust the crown will determine to select one of its nominees, at the least, from this source.

OUR STAMPED CIRCULATION.

A dropping fire has been going on for some time past in the *Times* relative to the stamped circulation of different newspapers. With others, the publisher of the *Medical Circular* addressed a letter to the editor of the leading journal relative to its own circulation; and Mr. Honeyman thought fit to do the same regarding this Journal. His communication, which appeared on the 24th of September, was as follows:—

"*To the Editor of the Times.*

"Sir,—My attention has been directed to a letter in the *Times* from Mr. James Sedcole, publisher of the *Medical Circular*, in which is given the comparative number of stamps issued to the *Lancet*, *Medical Times and Gazette*, and *Medical Circular*. Your correspondent has, I observe, omitted to mention the medical periodical which has the largest country circulation in the United Kingdom—the British Medical Journal. Allow me to correct Mr. Sedcole's omission, and to give a state-

ment, derived from the official return, of the number of stamps issued in 1857 to the four medical journals published weekly in London.

British Medical Journal . . .	106,534
Lancet	60,250
Medical Circular	57,600
Medical Times and Gazette . .	44,725

"I am, sir, your obedient servant,

"THOMAS J. HONEYMAN, *Publisher.*

"British Medical Journal Office, 37 Great Queen Street, W.C., September 22nd."

Thereupon our cotemporary, the *Medical Times and Gazette* waxed wroth, and its respected publisher, as it would seem, directed a letter to the *Times*, which did not appear. Our cotemporary, however, was not willing to let it die; and last week it appeared in his pages, with a few remarks of his own, not over courteous, and certainly very unfair. Our publisher is, by implication, accused of a *suppressio veri* and a *suggestio falsi*—two rather hard things to throw at any man, and which should be very well founded to be thrown at all. As it is, they are utterly without foundation. Our publisher, as will be seen, simply gives the relative number of stamps issued, and asserts that the BRITISH MEDICAL JOURNAL *has by far the largest country circulation* of any medical periodical in the United Kingdom. Nothing more or less was said by Mr. Honeyman than this, and we do not suppose for one moment that our cotemporary feels inclined to deny the statement. We very much question, indeed, whether the *Medical Times and Gazette* circulates half the number we do in the provinces. This is a fact we have a right to insist upon, and we shall continue to do it, having, as our cotemporary rather funnily says, "an eye to advantages", his own eye being anything but commercially turned.

Our cotemporary cannot take leave of the subject without a few well turned compliments to himself. He believes that the *Medical Times and Gazette* falls into the hands of a greater number of the profession than even the *Lancet* itself, and that a scientific paper has more chance of being read in its pages than in those of any of its cotemporaries; to which he forgot to add, as we shall do for him—Cock-a-doodle-doo!

Association Intelligence.

BRANCH MEETINGS TO BE HELD.

NAME OF BRANCH.	PLACE OF MEETING.	DATE.
METROP. COUNTIES. [Special General Meeting.]	11, Montagu Place, Bryanstone Square.	Friday, Oct. 22nd, 8 P.M.

NEW MEMBERS OF THE ASSOCIATION.

THE following are the names of those gentlemen who have become members of the British Medical Association since the publication of the list on July 24th; and of three names, marked with an asterisk, which were accidentally omitted in that list. Any member whose name has not been inserted in the lists published this year, will oblige by pointing out the omission to the General Secretary, Dr. Williams, Worcester.

Aveling, James H., M.D., Sheffield
Balfour, John H., M.D., Professor of Botany in the University, Edinburgh
*Bryant, Walter J., Esq., 7, Bathurst Street, Hyde Park Gardens
Churchill, Augustus H., Esq., Wrexham
Clarke, George B., Esq., Princeland, near Cupar Angus
Cowan, Michael W., Esq., H.M.S. *Victory*, Portsmouth
Craddock, Samuel, Esq., Shepton Mallet
Culling, Robert, Esq., West Lydford, Somerton
Dickinson, John, Esq., Surgeon to the Infirmary and Dispensary, Wrexham
Duncan, J. Matthews, M.D., Lecturer on Midwifery, Edinburgh
Dunsmure, James, M.D., Surgeon to the Royal Infirmary, Edinburgh
Edwards, Alexander M., Esq., Edinburgh
Falshaw, William, M.D., Ramsbottom
Fayrer, —, M.D., Bengal Army
Grant, George, M.D., Dufftown, Banffshire
Harris, Lewis, Esq., Totnes
*Hart, Ernest A., Esq., Cork Street
Hedger, —, M.D., Torquay
Inglis, A., M.D., Edinburgh
*Jackson, Thomas Carr, Esq., Euston Road
Keiller, Alexander, M.D., Physician to the Royal Infirmary, Edinburgh
Lizars, John, Esq., Edinburgh
Lord, John, Esq., Bury
Macleod, G. H. B., M.D., Lecturer on Military Surgery in Anderson's University, Glasgow
Morris, Richard T., Esq., Upholland, near Wigan
Murray, —, M.D., Edinburgh
Peddie, Alexander, M.D., Edinburgh
Perry, Marten, Esq., Evesham
Roberts, Richard C., Esq., Ruabon
Rowland, William, Esq., Surgeon to the Infirmary and Dispensary, Wrexham
Simpson, Alexander R., M.D., Edinburgh
Smith, Frederick P., M.D., Evercreech, near Bath
Smith, William, Esq., Preston
Stewart, D., M.D., Warley Barracks, Brentwood
Stilwell, Arthur, M.D., Hillingdon
Struthers, James, M.D., Leith
Walker, William C., Esq., Shepton Mallet
Watson, James, M.D., President of the Faculty of Physicians and Surgeons, Glasgow
Watson, Patrick Heron, M.D., Lecturer on Surgery, Edinburgh
Wood, Andrew, M.D., Edinburgh

LETTERS AND COMMUNICATIONS.

Letters or communications for the JOURNAL should be addressed to Dr. WYNTER, Coleherne Court, Old Brompton, S.W.

Letters regarding the business department of the JOURNAL, and corrected proofs, should be sent to 37, Great Queen Street, Lincoln's Inn Fields, W.C.

SOUTH-MIDLAND BRANCH: GENERAL MEETING.

A GENERAL Meeting of the above Branch was held in the Town Hall, Wellingborough, on Thursday, September 30th. The President, EDWARD DANIELL, Esq., took the chair at 1 P.M. There were also present: T. Herbert Barker, M.D. (Bedford); T. Clark, Esq. (Wellingborough); B. Dulley, Esq. (Wellingborough); A. Fernie, Esq. (Wellingborough); D. J. Francis, M.D. (Northampton); G. Hammond, Esq. (Irthlingborough); W. G. Johnson, Esq. (Bedford); J. G. Leete, Esq. (Thrapstone); J. Logan, M.D. (Kettering); P. M'Loskey, M.D. (Rothwell); B. Marsack, Esq. (Olney); J. Mash, Esq. (Northampton); R. B. Morris, Esq. (Brixworth); H. Purdy, Esq. (Wollaston); G. C. Sharman, Esq. (Wellingborough); B. Spurgin, Esq. (Thrapstone); R. S. Stedman, Esq. (Sharnbrook); H. Terry, Esq. (Northampton); H. Terry, jun., Esq. (Northampton); W. Thurnall, Esq. (Bedford); H. Veasey, Esq. (Woburn); J. H. Webster, M.D. (Northampton); H. Williams, Esq. (Thrapstone); W. S. Wyman, Esq. (Kettering); and as visitors: W. W. Clark, M.D.; and J. W. Wright, Esq., of Wellingborough.

The minutes of the last meeting were read and confirmed.

NEW MEMBERS.

The following new members were elected: James Logan, M.D. (Kettering); proposed by Dr. M'Loskey, seconded by Dr. Ody; and F. J. Morgan, Esq. (Stamford); proposed by Dr. Ody, seconded by Mr. Farmer.

CASES AND COMMUNICATIONS.

The following papers and cases were read:

1. Case of Protracted Retention of the Placenta. By Benjamin Dulley, Esq.
2. Cases of Hernia. By T. H. Barker, M.D.
3. Case of Ganglionic Deposits upon the Flexor Tendons of the Fore-arm and Hand. By Edward Daniell, Esq.
4. Cases of Polypus Uteri. By D. J. Francis, M.D.
5. Case of Lung-Disease. By W. G. Johnson, Esq.
6. Case of Tetanus, complicated by a large number of Lumbrici. By W. G. Johnson, Esq.
7. Case of Large Concretions removed from the Knee-joint. By W. G. Johnson, Esq.
8. Case of Protracted Miscarriage at the seventh month; with the ultimate escape of the Fœtal Bones *per anum*. By J. M. Bryan, M.D. In the absence of Dr. Bryan, this paper was read by one of the secretaries.

The following instruments, preparations, etc., were exhibited:

1. The Double Stethoscope. By R. S. Stedman, Esq.
2. An Instrument for the Radical Cure of Hernia, with a case. By W. Thurnall, Esq.

3. A large bony Tumour from the Pelvis. By W. Thurnall, Esq.

4. A large bony Concretion from the Knee-joint. By W. G. Johnson, Esq.

CASES OF FEVER.

The President made some remarks on fever cases which had latterly occurred in the neighbourhood of Newport Pagnell. A boy had been seized with typhoid symptoms—with tenderness of the abdomen, accompanying feverishness, and diarrhœa. He quickly became convalescent, dressed and walked, and went out to tea. At night he ate heartily of fried sausages. After this he was rapidly taken worse and died within eighteen hours, with all the symptoms of inflammation of the bowels. An elder brother came home, complained of general indisposition, and had diarrhœa. Mr. Daniell was sent for early the next morning, and found him cold and with considerable tenderness of the abdomen. He died the same night, having to the last severe pain of the abdomen. Mr. Daniell wished to know if similar cases had occurred in the practice of other medical men.

Dr. Webster had seen similar cases where uncontrolable diarrhœa had set in early.

Mr. Marsack had lately seen a great number of fever cases. In all of them diarrhœa was troublesome, and in two cases there was severe hæmorrhage from the bowels, proving rapidly fatal.

Dr. Francis looked upon every case of fever as a study by itself; there being scarcely two cases precisely similar. He had seen cases like the first one mentioned by Mr. Daniell. Probably the error in diet led to distension and the fatal result.

VOTES OF THANKS.

Dr. Webster proposed, and Mr. Leete seconded, a vote of thanks to the authors of the papers and cases read, with the request that they would allow them to be published in the British Medical Journal.

Dr. Barker moved and Dr. Webster seconded a vote of thanks to the feoffees for the use of the Town Hall, with the request that Mr. Dulley should convey the same to them.

DINNER: PROPOSED TESTIMONIAL TO DR. A. ROBERTSON.

The members adjourned to an excellent dinner at the Hind Hotel. After the usual loyal toasts, the health of the President was proposed.

After returning thanks, the President concluded with the following observations:—"Now, gentlemen, before I sit down, you will pardon me if I make a suggestion which has occupied my own thoughts, and the thoughts of some of my esteemed friends who are present; and I feel satisfied, when I have expressed it, there is not one amongst you but will testify your approval most enthusiastically. However we may respect the dignity of titled men, there is a nobility which princes cannot confer—a nobility which springs from the exercise of virtues which elevate the human character, adorn all public and private relations, and indicate the impress of that Divine Spirit which alone raises and purifies our nature. When I mention the name of Dr. Robertson of Northampton, and apply these noble qualities to him, you will not regard me as uttering fulsome adulation, or expressing what is untrue; because I have no hesitation in asserting there is not one amongst us, acquainted with that gentleman, but will testify in his own person to acts of kindness, generosity, zeal, professional courtesy, hospitality, and the full possession of every exalted virtue. I will say, too, of Dr. Robertson, that he was always the general practitioner's friend, warm, steadfast, and true; and, as such, he is not only entitled to our grateful and affectionate feelings, but to a more solid testimonial of our gratitude. I mourn, in common with yourselves, that it has pleased God to limit the usefulness of this excellent man, by so far weakening his bodily powers as to render his presence amongst us a thing of the past, and his services to the public and his counsel to us scarcely to be hoped for in the future. Shall we permit this noble man, in the best sense in which we can apply that term, to pass from us and be forgotten, when we owe him so much? I suggest to you, then, that we form a Committee to consider the best mode by which we can substantially testify our regard to our excellent friend Dr. Robertson; believing as I do that you will regard your contributions to this object not as one of those clap-trap testimonials got up to pamper pride and display ostentation, but to indicate that you are his debtors, and that, as honest men, you wish to pay him."

This suggestion was responded to with marked enthusiasm and delight, and several gentlemen immediately rose to express their thankfulness for the proposition, and to record their own experience of the noble nature of Dr. Robertson, as well as his unwearied attention and kindness when his professional assistance was required in their own persons.

A committee was formed on the spot, consisting of Dr. Francis, Dr. Webster, Messrs. Terry sen., Mash, Morris, Dulley, Spurgin, and Leete; the subscriptions to be limited to £1:1.

Amongst other toasts proposed, were "Success to the Royal Medical Benevolent College, and the Medical Benevolent Fund"; and the "Health of Mr. Griffin, and success to his noble and persevering efforts on behalf of the Poor-law medical officers".

This was the first meeting of the South-Midland Branch held in Wellingborough. It was well attended, and most interesting cases were brought before the members. The greatest unanimity and good feeling prevailed throughout the entire proceedings.

BATH AND BRISTOL BRANCH: ORDINARY MEETING.

The Ordinary Meeting of this Branch was held at the White Lion Hotel, Bristol, on Thursday, September 30th, 1858, at a quarter past seven, P.M.: James Crang, Esq., President, in the Chair. There were also present: J. S. Bartrum, Esq. (Bath); Wm. Budd, M.D. (Bristol); W. J. Church, Esq. (Bath); G. C. Corbould, Esq. (Bristol); J. G. Davey, M.D. (Northwoods); Wm. Davies, M.D. (Bath); E. L. Fox, M.D. (Bristol); H. E. Fripp, M.D. (Clifton); Jas. Godfrey, Esq. (Bristol); Thos. Green, Esq. (Bristol); W. B. Herapath, M.D. (Bristol); Wm. Henderson, M.D. (Clifton); Wm. Hutchins, Esq. (Keynsham); F. P. Lansdown, Esq. (Bristol); Crosby Leonard, Esq. (Bristol); Samuel Martyn, M.D. (Bristol); Geo. Norman, Esq. (Bath); Augustin Prichard, Esq. (Bristol); Thos. Sawer, Esq. (Clifton); J. K. Spender, Esq. (Bath); R. N. Stone, Esq. (Bristol); S. H. Swayne, Esq. (Bristol); Jas. Taylor, Esq. (Bristol); and, as visitors, R. Norton, Esq.; and — Davey, Esq., jun.

The minutes of the last meeting were read and confirmed.

CASES AND COMMUNICATIONS.

The following papers were read, and will be published in the Journal.

1. Case of Mollities Ossium. By J. K. Spender, Esq.

2. The Clinical Determination of Glucose and Urea. By W. B. Herapath, M.D.

Reports of Societies.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

TWENTY-EIGHTH ANNUAL MEETING.

[*Held in Leeds, Sept. 22nd, and following days*, 1858.]

[*Continued from page* 833.]

Section of Physiology.

ON THE HOMOLOGY OF THE SKELETON.

BY G. M. HUMPHRY, ESQ.

Having been lately engaged in lecturing and writing on the Human Skeleton (*Treatise on the Human Skeleton*, by G. M. Humphry. Cambridge: 1858), the author has carefully investigated the whole subject of its homology in relation to the skeletons of the various vertebrate classes, and in relation to its mode of development, and its connexion with the nervous system. The conclusions at which he has arrived differ in some particulars from those of the plan proposed by Professor Owen, more especially with regard to certain bones of the skull, such as the temporal bone, and the components of the anterior cranial or nasal vertebra. His arrangement, and the terms he employs, are set forth in the accompanying Table I; and in Table II, the bones are arranged according to the system of Professor Owen, the differences between the two plans being indicated by italics. He concludes that the pelvis consists of the *hæmal* elements of two sacral vertebræ; that the scapular arch consists of the hæmal elements of two cervical vertebræ; and that the limbs are appendages diverging from the points of junction of the hæmal spines with the hæmal alæ. The key to the comparison of the fore limbs with the hinder, which has proved a source of much difficulty to anatomists, is furnished by the fact that the limbs are placed, the former near the an-

terior, and the hinder near the posterior part of the trunk; and that, consequently, the opposed surfaces of their upper segments, as well as the opposed surfaces of the pelvis and scapula, are made to correspond; that is, the anterior aspect of each hinder limb corresponds with the posterior aspect of each fore limb. This disposition of the parts takes place during development. At first, each limb is nearly straight; the hands and the feet bud out from the sides of the trunk; the palms and the soles look downwards; and the thumb and the great toe are directed forwards. Subsequently, each limb undergoes a quarter turn, but in opposite directions. The anterior limb is rotated on its long axis *back*wards; the posterior limb is rotated, in a similar manner, *for*wards; the ilium and femur slant forwards from the hip; and the scapula and humerus slant backwards from the shoulder; the knee bends forwards, and the elbow bends backwards. In the anterior limb, however, the rotation of the distal segments, during pronation, is in an opposite direction to that of the proximal segments; and pronation is a more easy and habitual position than supination.

TABLE OF CRANIAL BONES.

I.—*Mr. Humphry's Arrangement.*

SENSE BONES AND CARTILAGES.	AUDITORY.			OPTIC.	NASAL.		
	Tympanic and petrous parts of temporal.	Ossicula auditus.	External cartilages.	Tarsal cartilages.	Turbinate bones.	Cartilage of septum.	External cartilages.

CRANIAL VERTEBRÆ ARRANGED HOMOLOGICALLY.

	Central parts.			Neural.			Transverse Process.		Ala.	Hæmal.		
VERTEBRÆ ..	Central.	Supra-Central.	Infra-Central.	Ala.	Spine.	Articulating processes.	Superior.	Inferior.		Ala.	Spine.	Diverging appendage.
1. OCCIPITAL	Basilar part.		Pharyngeal tubercle.	Side of foramen magnum.	Expanded part of occipital.	Condyles.	Jugular process.		Mastoid.	Lesser cornu of hyoid.	Body of hyoid.	Great cornu of hyoid.
2. POST-SPHENOID	Post-sphenoid body.	Posterior clinoid. Hinder part of olivary tubercle.	Hinder part of Rostrum.	Great ala of sphenoid.	Parietal.		External pterygoid.	Internal pterygoid.	Squamous.	Condyle of lower jaw.	Ramus of lower jaw.	Angle of lower jaw.
3. PRE-SPHENOID	Pre-sphenoid body.	Fore part of olivary tubercle.	Fore part of Rostrum.	Small ala of sphenoid.	Frontal.		Laminæ on side of sphenoid sinus.		Palate.	Superior maxilla.		Malar and Lacrymal.
4. ÆTHMOID	Median plate of æthmoid.	Crista Galli.	Vomer.	Cribriform plate of æthmoid.	Nasal.		Lateral portion of æthmoid.			Intermaxillary bone.		

II.—*Professor Owen's Arrangement.*

	Centrum.			Neurapophysis.	Neural spines.	Zygapophysis.	Diapophysis.	Parapophysis.	Pleurapophysis.	Hæmapophysis.	Hæmal spine.	Diverging appendage.
1. OCCIPITAL	Basilar part.			Side of foramen magnum.	Expanded part of occipital.	Condyle.		Jugular process.	*Scapula.*	*Coracoid.*	*Epistернum.*	*Fore limb.*
2. PARIETAL	Post-sphenoid body.			Great ala of sphenoid.	Parietal.			*Mastoid.*	*Styloid.*	*Lesser cornu of hyoid.*	*Body of hyoid.*	*Great cornu of hyoid.*
3. FRONTAL	Pre-sphenoid body.			Small ala of sphenoid.	Frontal.			*External angular process of frontal.*	*Tympanic.*	*Condyle of lower jaw.*	*Ramus of lower jaw.*	*Malar and Squamous and Pterygoid.*
4. NASAL ..	Vomer.			*Median and cribriform plates of æthmoid.*	Nasal.				*Palate.*	*Superior maxillary.*	*Intermaxillary.*	

THE INFLUENCE OF VARIOUS CIRCUMSTANCES IN CAUSING LOSS OR GAIN IN THE WEIGHT OF PRISONERS IN WAKEFIELD CONVICT PRISON. BY W. R. MILNER, ESQ.

The Wakefield prison contains an average of nearly four hundred convicts, who are weighed at regular and stated intervals, and the result recorded, in order to enable the medical officer to determine whether they are suffering from want of sufficient nourishment, etc. Their ages range from sixteen to fifty, and they remain in gaol on an average nine months each. One of the most noticeable facts elicited by the inquiry was, that the weight of the prisoners increased in summer, and in winter decreased. There was a small increase in April, a small increase in May, in June a gain, in July a larger gain, in August a very considerable gain, in September a loss, and this loss continued through the winter and spring, being in March very large indeed. Before trial prisoners generally lost weight, unless they were put upon extra diet—which appeared to compensate for the mental anxiety, and maintained the equilibrium of the body; but after trial, when they knew the worst, there was a considerable increase in weight for some months, and then the lengthened imprisonment began to tell upon them, and it was necessary to have recourse to the extra diet again. Another result was, that men who worked hard required more food to keep up their flesh than those who were engaged in light and sedentary occupations.

In reply to Dr. Smith,—

Mr. Milner explained the dietary of the convict prison, which Dr. Smith stated to be very liberal, whereas that in the county prison was, in his opinion, insufficient.

THE FORM OF THE EYEBALL, AND THE RELATIVE POSITION OF THE ENTRANCE OF THE OPTIC NERVE IN DIFFERENT ANIMALS. BY THOMAS NUNNELEY, ESQ.

It was well known, Mr. Nunneley observed, that the orbits are much larger than the eyeballs, and that their axes diverge considerably in an outward direction, while those of the two eyes are perfectly parallel. The eyeballs lie in the fore part of the orbits, and, according as they are more or less prominent, and more or less covered with the lids, do they appear to be larger or smaller. The eye of the infant is larger, in proportion to the size of the body, than that of the adult; but it is by no means certain that the eye of the male is larger proportionately to the size of the body, than the eye of the female. By some anatomists the human eye was described as a spheroid, the diameter of which, from before to behind, is greater than in any other direction. He had measured a great number of eyes, of the human subject as well as of animals; and he found that, wherever there was a departure from the spherical figure, it was in the direction contrary to that which had been commonly stated. In some instances the difference between the two diameters was scarcely perceptible; in all, where a distinction was observed, the transverse was the greatest. He had prepared a set of tables, which were printed, containing the result of the measurement of two hundred eyes of various creatures. The measurements, he thought, clearly proved that whatever part the fibres of the optic nerve play in the phenomena of vision the greatest number of them are distributed on that part of the eyeball where there is the greatest range of vision, and that the greatest expanse of retina is on that part of the ball opposite to where objects are placed, and consequently it is where the visual image of them must fall. That this was a fact a careful comparison of the position of the eyes in the head, the size of the eyeball, and the exact position of the entrance of the nerve into it, with the mode of life and habits of various creatures, would render obvious. Man, from the erect position of his body, the horizontal placing of his eyes, and his habits, has a more panoptic range than any other creatures (of course in this consideration all motions of the head, neck, and body of the animal must be excluded, and those of the eyeballs alone admitted). In him the optic nerve enters the ball not far from the centre, leaving, however, a somewhat shorter space on the inner and lower parts of the retina than on the upper and outer. Now, while man enjoys a free range of vision above the horizontal line, there are far more occasions for him to look at objects below than above this line, and thus more visual images are projected to the upper and outer sides of the entrance of the optic nerve than to the inner and lower sides of this spot. In the pig, who sees at no great range before him, and who seeks his food with the snout almost always on the ground, whose head and eyes are consequently for the most part downwards and near to the ground, the nerve enters the ball more outwardly and much lower than it does in man. The pig wants not to see far before him, but he does require while grubbing to look behind him from whence danger comes. So with the timid herbivorous animals; in the bullock and sheep, who pass much time with the head in a dependent position near to the ground, in open plains, the upper and inner sides of the retina are much larger than the lower and outer portions; while, in the deer who live in more wooded places, where danger is from the front, but who, like the bullock, has the head downwards in feeding, though the inner or anterior side of the retina is still larger than the posterior, it is so to a much less extent than it is in the bullock, while the upper portion still continues as proportionally large as it is in sheep and bullocks. On the contrary, in the horse, who is not so preyed upon, who carries the head erect, and observes all around, the nerve enters the eye more nearly in the axis. In birds, with few exceptions, the upper portion of the retina is much more considerable than the lower parts, but the anterior and posterior portions vary much in different genera. Those whose locomotion is performed principally by the feet, and whose range of habitation is very small, as the common fowl and turkey, have the inner or anterior portion very considerably greater than the outer or posterior; those birds whose range is greater, and who use the wings for progression, but do not wander very far, as the grouse and partridge, have a much less difference in the two portions of the retina; while in those birds whose flight is far and prolonged, as the crow, rook, swan, goose, and duck, the entrance of the nerve is very nearly in the centre of the ball. So in reptiles; in the turtle, who only requires to see immediately before and under him, the outer and upper portion of the retina are very much the larger. In the more active alligator, frog, toad, and chameleon, while the upper portion maintains its size, the outer and inner parts are more nearly equal. In those creatures whose habitation is for the most part under ground, as the shrew and the mole, the eyes are so small as to have led Magendie to assert that the mole is without the organs altogether; but this is not the fact, for all the essentials of an eye exist, even true retinal elements, optic nerve, and a well developed choroid. Yet the organ is so minute and concealed by the skin and hair, as probably only to enable the creature to discern the light, which is all that it requires, for, living under ground, where it seeks its prey, it obviously must depend upon the acuteness of other senses rather than of sight for its living. Though in the individual there is usually some proportion between the size of the eye and the body, taking different classes and genera, the size of the animal is very little guide to that of the eye, the proportions between the two being determined by other considerations than that of the bulk alone of the creature; for though, as a whole, the eye in fish bears a larger proportion to the whole body than it does in other divisions of the animal kingdom, and the eyes of birds are, as a class, much larger than those of mammalia or reptiles, yet amongst the different genera of all these classes there are very great differences, determined, apparently, by the following considerations, amongst others not so obvious. When the creature lives in feeble light, yet moves actively about, and is guided in its locomotion by the sense of sight, as in nocturnal birds and animals and fish, the eye is very large, apparently to take in a large quantity of the feeble light; on the contrary, where the creature is guided in its movements by other senses, then the eye is very small, as in the bat, the mole, the shrew, and the eel. Where vision penetrates to a long distance, and where the eye enjoys great power of overcoming the aberration of parallax, the eye is large, as in rapacious birds. When the brain and intellect are more developed, the size of the eye diminishes, and the two eyes become more parallel, as in man and the higher mammalia. Where animals are feeble, timid, have but little defensive power, and are preyed upon, the eye is usually very large, as in the hare, the conies, the whole deer tribe, and many of the other ruminants. Where the animal is not predacious, and its size and strength are such as to protect it from being preyed upon, the eyes are commonly small, as in the whale and the elephant; in the latter the eye is even smaller than it is in the horse and scarcely larger than in the eagle.

THE STRUCTURE OF THE CHOROID COAT OF THE EYE, AND MORE PARTICULARLY THE CHARACTER AND ARRANGEMENT OF THE PIGMENTARY MATTER.
BY THOMAS NUNNELEY, ESQ.

The choroid coat is the dark tissue interposed between the delicate sentient retina and the hard, dense sclerotic, and co-extensive with the latter. It begins at the entrance of the optic nerve by a round aperture, with a distinct edge, in close

apposition with the nerve, but not organically connected with it, and passing forward as far as the junction of the sclerotic and cornea, where, as choroid proper, it terminates. It there comes in connection with the ciliary circle or muscle, the ciliary body and the iris. The choroid is essentially a vascular membrane, being made up of blood-vessels, colouring matter, and a modified white fibrous tissue. The choroid universally provided the pigmentary nigrum, and is of a deep bronze colour, approaching to black. The pigment was described as consisting of two distinct forms of cells,—on the inner surface the choroid, of true hexagonal cells, and in the tissue, and on the posterior surface, of stellate cells. The use of these cells was to destroy the light as soon as it had acted on the retina; and they were the most perfect absorbers of light of any substance in Nature that Mr. Nunneley knew of. From the account he gave of the arrangement of the pigment, it afforded what he considered a satisfactory anatomical explanation of an abnormal condition of the eye which had hitherto not been understood—*muscæ volitantes*. The figures of those motes he believed to resemble exactly portions of the choroid coat when teazed out; and they might be expected to appear and disappear with the varying condition of the vessels arising from disordered stomach or the cerebral circulation, and be cured by whatever corrects those conditions; or the muscæ might result from different organic changes in the choroid coat, which are incapable of being removed.

THE SPINAL CHORD A SENSATIONAL AND VOLITIONAL CENTRE. BY G. H. LEWES, ESQ.

The paper was read by Professor Owen. Doubts had long existed in the mind of Mr. Lewes as to the commonly received opinions regarding the functions of the spinal chord; and he had been led to perform a series of experiments, which, with their results, were embodied in the paper. Against the hypothesis of the brain being the exclusive seat of consciousness the author had for some years gathered increasing strength of conviction, preferring the hypothesis of the sensorium being co-extensive with the whole of the nervous centres. From the mass of evidence furnished by experiments, all bearing on the same point, the sensational function of the chord acquired in his mind the force almost of a demonstrated truth. A few cases might be selected. Place a child of two or three years old on his back, and tickle his right cheek with a feather, he will first move his head aside, and then on the tickling being continued he will rise his right hand, push away the feather, and rub the tickled spot. So long as his right hand remains free, he will never use the left hand when the right cheek is tickled, or *vice versa*. But if his right hand be held, he will rub with the left. The voluntary character of these actions is indisputable in spite of their uniformity; they are prompted by sensation, and determined by volition. The action of the sleeping child, under similar circumstances, is precisely similar. Mr. Lewes tickled the right nostril of a three-year old boy. He at once raised his right hand to push him away, and then rubbed the place. When the left nostril was tickled he raised the left hand. When the left arm was gently but firmly held down, and the left nostril was tickled, he raised the right hand, and with it rubbed the left nostril, an action he never performed when the left hand was free. The actions of the sleeping and the waking child are so similar that both must be credited with sensation and volition (and if not both, then neither must be so credited); in like manner the actions of animals before and after decapitation exhibit no more difference, as respects sensibility, than the actions of the waking and the sleeping child; so that here again, unless both actions are credited with sensation and volition, neither of them can put in a claim. A water-newt was decapitated; its actions were precisely the same before and after decapitation. After allowing a quarter of an hour to elapse, Mr. Lewes touched the flank with acetic acid. The movements at first were very disorderly. It ran about in great uneasiness, just as it had done before its head was off. It curled itself up, and seemed about to die. Some time afterwards it was again touched with the acid; it again became disorderly, and was then pushed towards the side of the box; but it did not move until pushed slowly forwards so that its flank might come into contact with the wood; it continued crawling slowly and with intervals of rest, its body curved outwards so as to continue in contact with the wood, and its hind leg pressed close to the tail, and thus it rubbed away the acid. There are two points noticeable here: first, the readiness with which a sensation of contact suggested a means of relief; secondly, that this was the only newt which, in the author's experiments, ever hit upon this plan, and this one did so as well without its head as with it. The author divided the chord of a newt between the fifth and sixth cervical vertebræ. The convulsions which followed were almost as severe as those which follow decapitation; but in this case the forelegs were tetanic, and the hind legs pressed close to the body. After a few minutes it tried to rise, but failed. Bubbles of carbonic acid were constantly expired. After fifteen minutes it turned completely round and crawled five steps forward, dragging the hinder segment after it like a log, the hinder legs not moving at all. This was repeated several times. In fifteen minutes more, sensibility was detected in the hinder segment. Here was a case which would have been pronounced very simple. Division of the chord had seemingly destroyed all power of voluntary movement in the limbs below the section. The hind legs seemed paralysed. When the anterior segment was irritated, the animal crawled away, dragging the motionless posterior segment after it. When this posterior segment was irritated, the animal did not crawl, but simply withdrew the limb or tail. If the tail or hind leg were touched with acetic acid, the whole of the posterior segment (in which volition was said to be destroyed) began to move, and the legs set up the crawling action, attempting to push the whole body forward, which could not be effected, because the anterior segment was perfectly motionless. The hind legs, which never moved when the anterior segment was irritated, moved now in obedience to the spinal volition; and the anterior segment, which before seemed so energetic in its voluntary movements, was now perfectly unmoved. Each centre ruled its own segment. If the motionlessness of the hind legs when the animal crawled was a proof that voluntary power was destroyed in those legs, the motionlessness of the fore legs when the hind legs moved was equally a proof that voluntary power is destroyed in the fore legs. The real truth seemed to be that each segment had its own volitional centre, and that the one was never affected by the other. The author had divided the chord of a newt near the centre of the back. Four days after the operation, the animal had so far recovered that no spectator could distinguish between the voluntary power of its two segments. When the flame of a wax match was brought near the cerebral segment, the fore legs set to work, and the animal crawled away, dragging the hinder segment along. When the flame was brought near the spinal segment, the hind legs worked, and the body moved sideways, the anterior segment remained perfectly quiescent. All other stimuli produced similar results. The author submitted that the explanation here proposed of two independent volitional centres is far more consistent with the phenomena than the explanation offered by the reflex theory. One simple fact proved that the spinal chord is a sensational centre, namely, the fact that whenever sensibility is destroyed all actions cease to be co-ordinated. Every one knows how greatly our muscular sensibility aids us in the performance of actions; but it has apparently been forgotten that if sensibility be destroyed in a limb, by section of the posterior roots, the power of movement will be retained so long as the anterior roots are intact; but the power of co-ordinated movement will be altogether destroyed. With diminishing sensibility we see diminishing power of co-ordination, the movements become less and less orderly; and with the destruction of sensibility the movements cease to have their co-ordinated harmony. Now in the cases cited it was clear that this power of co-ordinating movements—sometimes very complex movements—was nearly, if not quite, perfect in the decapitated animal; therefore, if co-ordination implies sensibility, the conclusion seems inevitable that the spinal chord is a centre of sensibility. The whole case was summed up thus:—1st. Positive evidence proves that in decapitated animals the actions are truly sensorial. 2nd. Positive evidence, on the other hand, shows that in human beings with injured spines the actions are not sensorial, but reflex. 3rd. But as the whole science of physiology presupposes that between vertebrate animals there is such a general concordance that whatever is demonstrable of the organs in one animal will be true of similar organs in another—and inasmuch as it is barely conceivable that the spinal chord of a frog, a pigeon, and a rabbit should have a sensorial function, while that of man has none, we must conclude that the seeming contradiction afforded by human pathology admits of reconcilement. Either animals are unconscious machines, or decapitated animals manifest sensibility and will.

The Chairman, (Mr. T. P. Teale) said the paper was most valuable, but he thought the experiments might be claimed for reflex action almost as much as in favour of the theory of Mr. Lewes.

Mr. Nunneley said that the paper asserted too broadly that

it had been held that sensation and volition were suspended in sleep. The person who talked in sleep and the sleep-walker both disproved the assumption of entire suspension. He had himself removed the spinal marrow of cats and rabbits, and they had lived and moved for eight hours afterwards. If they departed from the position that volition was resident in the higher masses of the spinal marrow, they must go further and maintain that it existed in different parts of the body; and that would lead them back to the opinion of the earlier anatomists, that the nervous system was not essential to vitality.

After a few words from Mr. S. Hey,

Professor Owen directed attention to the comparative largeness of the human brain and the smallness of the spinal column of man, as compared with those of the animals experimented upon, and said it might be that there were some sensations felt by the lower animals which are not experienced by human beings; and if the inquiry were pursued, with this idea kept in view, they might be able to reconcile what now appeared to be conflicting.

[*To be continued.*]

Medical News.

BIRTHS, MARRIAGES, DEATHS, AND APPOINTMENTS.

** In these lists, an asterisk is prefixed to the names of Members of the Association.*

BIRTHS.

Cobbold. On September 28th, at Norland Square, Notting Hill, the wife of T. Spencer Cobbold, M.D., F.L.S., of a daughter.

Gurney. On September 28th, at Nice, the wife of — Gurney, M.D., of a son.

Rice. On October 3rd, at Stratford-upon-Avon, the wife of Bernard Rice, M.B., of a son.

Sillifant. On September 25th, at 1, Thornhill Square, Barnsbury, the wife of Horatio Sillifant, Esq., Surgeon, of a daughter.

Sleeman. On September 19th, at Bristol, the wife of *Philip R. Sleeman, Esq., Surgeon, of a daughter.

MARRIAGES.

Andrews—Hewitt. Andrews, Charles, M.D., of Hammersmith, to Sarah Barford, eldest daughter of the late Henry Hewitt, Esq., of Clifton-on-Dunsmore, Warwickshire, on September 4th.

Banks—Johnson. Banks, W. Roger, M.D., to Anne Maria, second daughter of A. H. Johnson, Esq., of Gunnersbury, at Ealing, on October 5th.

Beakley—Oliver. Beakley, Christopher, Esq., to Catherine, only daughter of the late Richard James Oliver, Esq., Surgeon, of Leicester, on September 30th.

Brisley—Calvert. Brisley, T. Etherington, Esq., to Mary Elizabeth, only surviving child of the late R. Calvert, M.D., Deputy Inspector-General of Hospitals, at St. Pancras Church, on September 28th.

Ellis—Ridler. *Ellis, Robert William, Esq., Surgeon, of Bristol, to Eleanor Caroline, eldest daughter of H. H. Ridler, Esq., at St. Andrew's, Holborn, on October 5th.

Forbes—Herry. Forbes, David, M.D., of Sudbury, Derbyshire, to Mary Augusta, daughter of the late Lieut.-Col. Herry, C.B., 37th Bengal Native Infantry, at Uttoxeter, on October 3rd.

Herelle—Seaman. Herelle, William, Esq., merchant, of Bradford, to Mary Ann, daughter of the late Charles Seaman, Esq., Surgeon, of Smyrna, at Shipley, on Sept. 22nd.

Hulke—Ridley. Hulke, John W., Esq., Surgeon, of London, to Julia G., daughter of the late Samuel Ridley, Esq., of Hastings, on October 1st.

Lloyd—Duncombe. Lloyd, Charles Frederick, Esq., H.M. 3rd West India Regiment, to Jessica Mary, eldest daughter of the late Alexander Duncombe, M.D., of Antigua and Clifton, at Clifton, on September 28th.

Wollaston—Boghurst. Wollaston, Robert, M.D., of Westbourne Terrace, Hyde Park, to Catherine Anne, second daughter of the late Philip Boghurst, Esq., of Worthing, at Broadwater, on September 28th.

DEATHS.

Alger. On September 20th, at Slough, Bucks, of malignant sore-throat, Marianne, wife of J. S. Alger, Esq., Surgeon.

Blenkin. On September 29th, at Brighton, aged 23, Helen Grace, eldest daughter of the late J. T. Blenkin, Esq., Assistant-Surgeon 28th Regiment Madras Native Infantry.

Darling. On September 27th, at Ryde, Isle of Wight, John Darling, Esq., of the Inner Temple, Barrister-at-Law, second son of George Darling, M.D., of Russell Square.

Gibbs, Harry Leeke, M.D., at Exeter, aged 77, on Sept. 27th.

Griffith. On October 6th, at Peckham, Alice Palmer, third daughter of *John T. Griffith, Esq., Surgeon, aged 3 years.

Pritchett. On September 29th, at 15, Paynton Terrace, East India Road, Limehouse, Charles, eldest son of the late C. Pritchett, Esq., Surgeon, aged 10 years.

Robinson. On September 26th, at Rugeley, Jane, widow of the late John Robinson, M.D., formerly of Doncaster.

*Salter, Thomas Bell, M.D., F.L.S., of Ryde, Isle of Wight, at Southampton, on September 30th.

Tovey, Charles Henry, Esq., Assistant-Surgeon 30th Regiment, on September 29th, at Carisbrooke, five days after reaching home from India.

APPOINTMENTS.

Skey, Francis W., Esq., appointed Surgeon to the Royal General Dispensary.

HEALTH OF LONDON:—WEEK ENDING OCTOBER 2nd, 1858.

[*From the Registrar-General's Report.*]

The deaths in London, which had fallen considerably below a thousand in the previous week, rose in the week ending last Saturday, October 2nd, to 1021. In the ten years 1848-57, the average number of deaths in the weeks corresponding with last week was 1284; and as the number now returned occurred in an increased population, and the average, if raised in proportion to that increase, becomes 1412, a rate of mortality diminished to the extent shown by a comparison of these numbers, will appear an eminently favourable result. If, however, the excess of deaths that arose in epidemic seasons is withdrawn from the above average, the comparison will still give a reduction of 240, to show that the present time is unusually healthy.

Sixty-three districts of England, in which the mortality is least, have been selected, and their average rate of mortality in the last three months of the year has been ascertained. If the deaths in London last week had been according to the "healthy rate" thus obtained, and which it is useful to adopt as a standard, they would have been 770; and the actual excess, or the number of *unnatural* deaths, is 251.

It is to be regretted that scarlatina shows a constant, though not a rapid, increase. During four weeks that have elapsed since the weekly deaths from it rose above 100, the numbers have been consecutively 115, 118, 125, and (last week) 134. Of these 134, there occurred 11 under one year of age; 18 at one year; 19 at two years; the same number at three; 21 at four years; 37 at five; 5 at ten and under fifteen; 4 at twenty years and upwards. To take a few of the sub-districts where scarlatina appears to be most prevalent—there were 8 deaths from it in Islington West, 7 in Limehouse, 6 in Bow, and 5 in St. Peter, Walworth.

Of 40 deaths registered last week, and placed in the tables to *violence*, 30 were accidental, 4 were by suicide, and no fewer than 6 by murder or manslaughter. Of these last, 5 were the deaths of infants.

Of five nonagenarians in the present returns, three were men, and of these the oldest had attained the age of 97 years.

Last week the births of 861 boys and 865 girls, in all 1726 children, were registered in London. In the ten corresponding weeks of the years 1848-57, the average number was 1571.

At the Royal Observatory, Greenwich, the mean height of the barometer in the week was 29·942 in. On the first three days, the mean daily reading was above 30 in. The highest reading was 30·36 in.; and the lowest 29·47 in. The mean temperature of the week was 57·6°, which is 3·6° above the average of the same week in 43 years. The highest point attained by the thermometer in the shade was 71·8°, on Wednesday; the lowest point was 40·1°, on Friday. The entire range of the week was 31·7°. The mean daily range was 16·3. The range of temperature on Monday and Tuesday was remarkably small, namely, 9·9° on the former day, and

6·7° on the latter. On Friday it was 25·3°. The difference between the mean dew-point temperature and air temperature was 6·4°. The mean temperature of the water of the Thames was 60·4°. The mean degree of humidity was 78. The wind blew from the south-west on every day except Wednesday. No rain fell, except a little on Wednesday night and Thursday morning, amounting to 0·06 in.

THE MEDICAL ACT: MEETING OF THE MEDICAL PROFESSION.

ON Tuesday evening a preliminary meeting of the medical profession was held at the Freemasons' Tavern, to take into consideration the provisions of the new legislative measure as affecting the medical body at large. Mr. Ross, of Farringdon Street, occupied the chair. Fifty-three gentlemen were present.

The CHAIRMAN, in opening the proceedings, drew the attention of the meeting to the provisions of the Act itself. He said that after thirty years of protracted agitation of medical affairs it was hoped that some definite measure would have been produced. He was of opinion that what the profession should have obtained was representative councils, protection against illegal practitioners, and a uniform standard of education. Any act of parliament that did anything at all should embody these provisions. So far as he could read the measure before them he could not see anything whatever of that kind. One question he considered of the utmost importance respecting the interests of the profession throughout the length and breadth of the land was protection against illegal practitioners. As far as the new Act went it provided them, it is true, with a register, which defined their qualifications to be legal; but as far as regarded putting penalties on those who practised illegally it was altogether deficient; it will be found in the working utterly wanting. [*Hear, hear.*] The "homœopathists," the "chronothermalists," the "Coffinites," and all quacks of every kind who practised throughout the country, and who did infinite harm, might go on much the same as before, so far as the new law was concerned. He intended to have a better Act than that, and they must keep the agitation alive until two general practitioners were placed upon the new council, as the Act seemed to ignore the general practitioner on the general council. When the College of Surgeons had their charter renewed it was intended that the franchise of that body should be extended to the general members. He condemned the new measure as most unsatisfactory, but thought it good ground to work upon. The next thing would be giving the dentists power to operate on the mouth, which would produce a kind of half-qualified body. He had heard that it was intended to register the general practitioner as a "surgeon-apothecary," which would be a degradation to the whole body. The speaker concluded by trusting that the large body of general practitioners would make themselves heard until they obtained something like a proper recognition and representation of their interests.

The meeting was addressed by Drs. Fowler, Cregreen, Head, and Lobb, and Messrs. Kesteven, T. Ballard, Curgenven, and Jakins; and the following resolutions were carried:—

"That this meeting accepts with satisfaction the new Medical Act as a basis of a more perfect measure of medical reform; but views with apprehension the fact that no due provision is made for the representation of general practitioners in the general council."

"That by clause 48 of the new Act Her Majesty is empowered to grant a charter to the Royal College of Surgeons, enabling the Council to institute examinations for the admission of dentists; this meeting decidedly objects to the charter being granted for any such special object. That this meeting is further of opinion that in the event of any alteration of the present charter of the Royal College of Surgeons the general body of members should have a voice in the management of the affairs of their college."

The meeting came to the conclusion to hold a public demonstration on an early day for the purpose of founding an association to watch over the interests of the general practitioners in every part of the kingdom. A provisional committee was formed, consisting of the following gentlemen: T. Ballard, Esq.; T. E. Bowkett, Esq.; Charles Clarke, Esq.; Dr. Cregreen; Hugh Davies, Esq.; Dr. Fowler; Dr. Thomas Head; Dr. Holmes; I. N. Jakins, Esq.; W. Jones, Esq.; Dr. Lobb; Dr. Mason; G. Ross, Esq.; Dr. Sparke; with H. W. Lobb, Esq., as Honorary Secretary.

A strong feeling of indignation was expressed by several gentlemen at established medical men being compelled, after all their costs of diplomas, to pay two pounds for registration.

An audience with the Right Hon. Spencer Walpole has been solicited, to bring under his consideration the resolutions passed at the meeting.

THE ROYAL COLLEGE OF PHYSICIANS AND THE MEDICAL ACT.

ON Thursday week, in compliance with a summons issued by the *consiliarii*, a numerously attended meeting of the Fellows of the College of Physicians was held, for the purpose of considering the steps to be taken to elect a a representative from the College to the Medical Council to be established in accordance with the provisions of the Medical Act. The President, Dr. Mayo, occupied the chair, and the following motion was proposed by Dr. F. Hawkins, the Registrar of the College:—

"That it be referred to the *consiliarii* to consider whom it will be proper for the College to choose as members of the Medical Council, and to report to the College thereon."

The motion was supported by Drs. Latham and Nairne. Dr. Sieveking, one of the medical staff of St. Mary's Hospital, proposed as an amendment to Dr. Hawkins's resolution,

"That it be left directly with the Fellows to elect a representative to the Medical Council."

The amendment, which was warmly supported by Drs. Alderson, Copland, Sir John Forbes, Markham, etc., after more than two hours and a half debate, was carried by a majority of more than two to one; the result was received with marked applause by all those present. It is said that, had it not been for the shortness of the notice, as well as the absence of a large number of the Fellows of the College from town, the majority would probably have been four to one; and that this will be proved by the result of the next meeting of the Fellows.

FINANCES OF THE ROYAL COLLEGE OF SURGEONS. From a report of the receipts and expenditure of the Royal College of Surgeons, it appears that during the year, from Midsummer-day 1857 to Midsummer-day 1858, the former amounted to £13,678 : 5 : 0. Of this sum £11,371 : 19 : 0 were derived from diploma fees; from fellowship fees £871 : 10 : 0; and from the fees for midwifery licenses £333 : 18 : 0. The disbursements amounted to £10,828 : 7 : 11. The following is the summary: Incidental income £12,642 : 2 : 0. Incidental expenditure £7,637 : 14 : 1. Permanent income £1,036 : 3 : 0. Permanent expenditure £3,190 : 13 : 10.

THE LATE MR. TRAVERS. An admirable bust of this distinguished surgeon has just been placed in the Council-room of the Royal College of Surgeons. It is by Mr. Behnes, and considered a faithful likeness of the deceased gentleman.

ROYAL COLLEGE OF SURGEONS. From an examination of the new list just published by the College of Surgeons, it appears that there are now 1,128 fellows, of which number no less than 225 have obtained the honour by examination. The list of licentiates in midwifery is greatly augmented since last year, the number now amounting to 591.

MEDICAL BENEVOLENT FUND SOCIETY OF IRELAND. The usual monthly meeting of the Committee of the above Society was held on September 30th, at the College of Surgeons. Dr. Benson, Chairman of the Committee, presided. The Secretary had the pleasure of reporting, that since the last meeting he had transmitted to the Earl of Eglintoun a copy of the Society's Report for 1858, and that his Excellency had kindly and promptly forwarded a donation of £5 to its funds. A warm vote of thanks was presented to the Lord Lieutenant for his gracious contribution. A sum of £3 was also received from Mrs. Kirby and the Rev. J. Kirby. Such distinguished and non-professional assistance is, so far, not only satisfactory proof of the value of the Society, but also a strong inducement to such members of the profession as have not as yet subscribed to enrol themselves as members. Applications having been received on the part of two medical gentlemen, who stood in need of assistance for the sake of promoting the education and advancement in life of some members of their families, it was, after considerable discussion, concluded that the rules of the Society would not admit of such an application of its funds, unless that its resources were much less limited than at present. The Committee then adjourned to the last Thursday in October. (*Dublin Hospital Gazette.*)